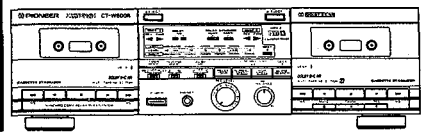
PIONEER®
The future of sound and vision.

Service Manual



ORDER NO.
ARP1664

STEREO DOUBLE CASSETTE DECK

CT-W600R

● This manual is applicable to the KUC type.

CONTENTS

1. SAFETY INFORMATION 2
2. EXPLODED VIEWS AND PARTS LIST 3
3. PACKING 12
4. SCHEMATIC DIAGRAM 13
5. P.C. BOARDS CONNECTION DIAGRAM 17
6. ELECTRICAL PARTS LIST 25
7. ADJUSTMENTS 28
8. OPERATION OF DECK MECHANISM UNIT 31
9. PANEL FACILITIES 39
10. SPECIFICATIONS 42

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

© PIONEER ELECTRONIC CORPORATION 1988

SI NOV. 1988 Printed in Japan

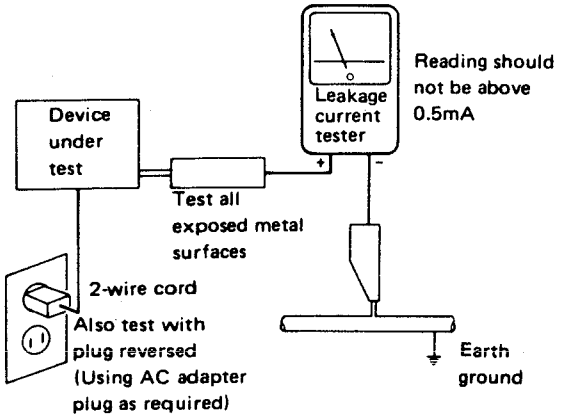
1. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Leakage current tester
Reading should not be above 0.5mA
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

NOTES :

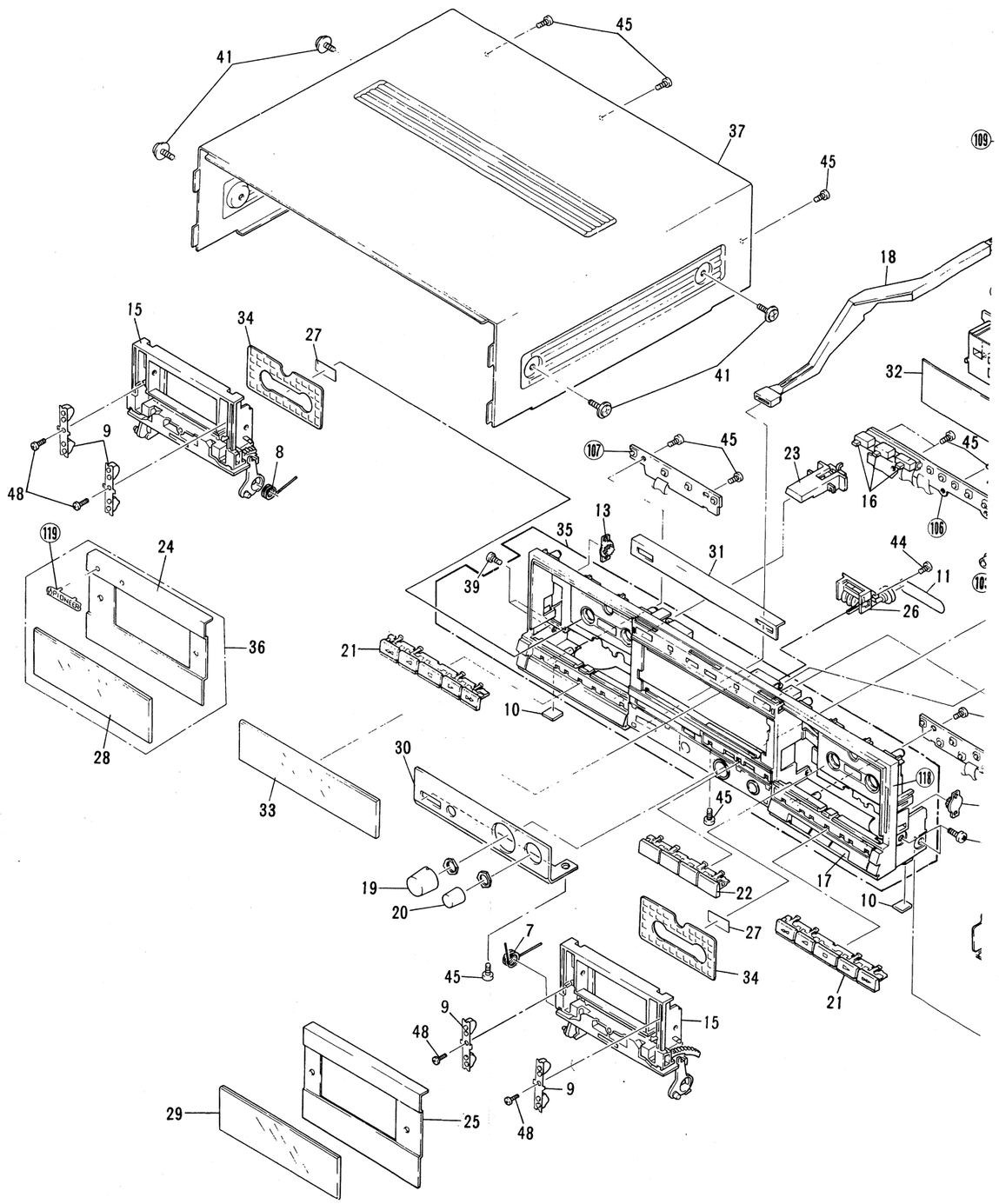
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

2. 1 PARTS LIST OF EXTERIOR

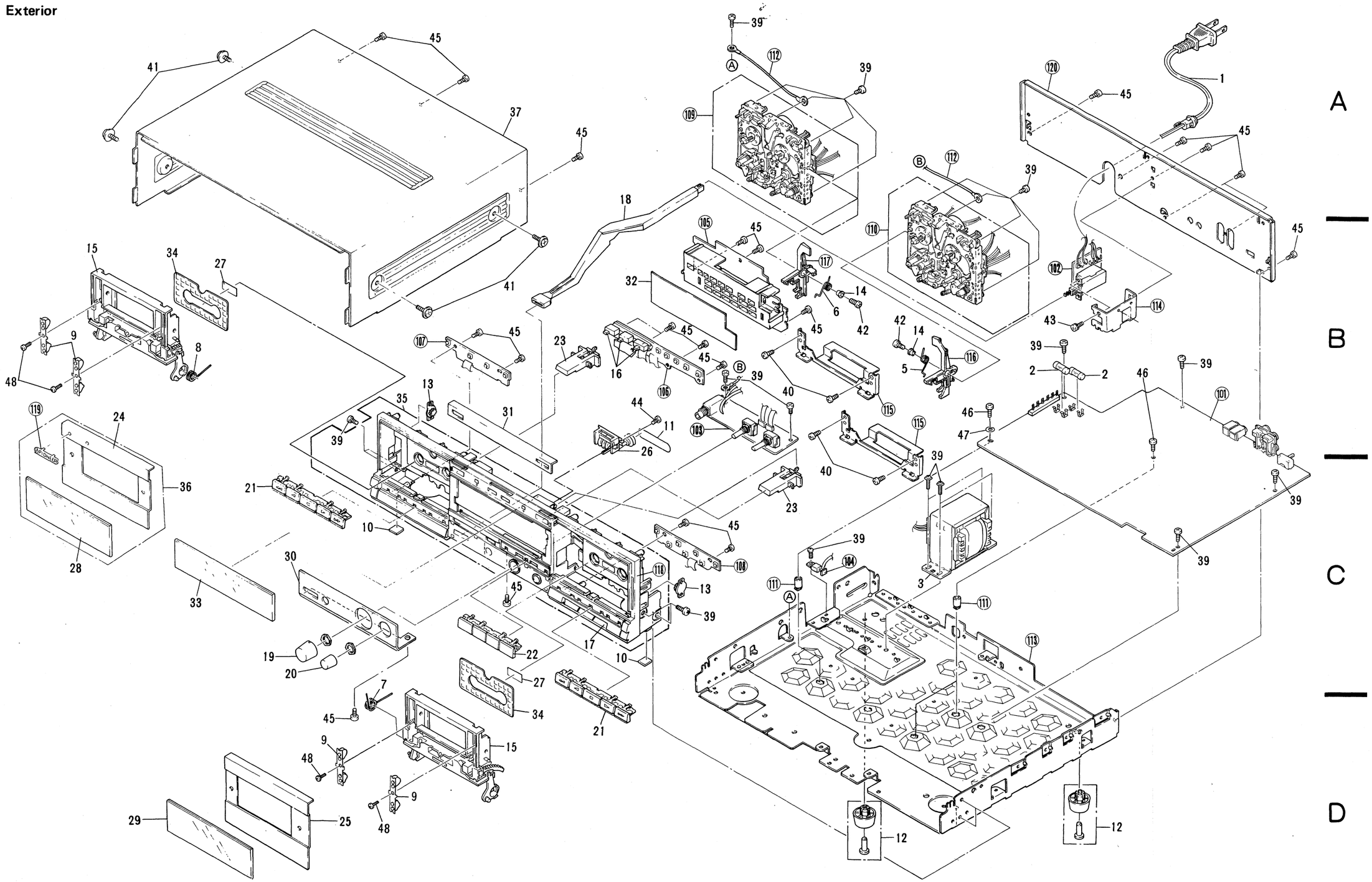
Mark	No.	Part No.	Description
⚠	1	ADG−064	AC power cord
⚠	2	REK−073	FU101, FU102, Fuse (1.25A)
⚠	3	RTT1047	T1 Power transformer
	4	.....	.....
	5	RBH1140	Eject lever spring (L)
	6	RBH1141	Eject lever spring (R)
	7	RBH1187	Door spring (L)
	8	RBH1188	Door spring (R)
	9	RBK1013	Half Pressure spring
	10	REB1004	Stopper
	11	REB1046	Counter belt
	12	REC−434	Leg assembly
	13	REC1013	Damper assembly
	14	RLA1104	Collar
	15	RNT1010	Door pocket
	16	RAC1180	Slide knob (A) (TIMER MODE, DOLBY NR)
	17	RAC1187	Knob (MUTE, PAUSE, REC)
	18	RAC1196	Knob (POWER)
	19	RAC1210	Knob (REC LEVEL)
	20	RAC1211	Knob (REC BALANCE)
	21	RAC1193	Knob (◂◂, ◂, ■, ▸, ▸▸)
	22	RAC1215	Knob (RELAY/SKIP, NORMAL SPEED, HIGH SPEED BLANK SEARCH)
	23	RAC1214	Knob (EJECT)
	24	RAH1402	Door cover (L)
	25	RAH1439	Door cover (R)
	26	RAW1022	Counter
	27	REE−113	Remaining sheet
	28	RAH1218	Door lens (L)
	29	RAH1219	Door lens (R)
	30	RAH1449	Front panel (under)
	31	RAH1225	Front panel (upper)
	32	RAH1403	Meter panel
	33	RAH1404	Meter lens
	34	REB1038	Stabilizer B
	35	RXX1148	Panel stay assembly
	36	RXX1157	Door cover (L) assembly
	37	RXX1066	Bonnet
	38	.....	.....
	39	BBZ30P080FMC	Screw
	40	PBZ30P060FMC	Screw

Mark	No.	Part No.	Description
	41	FBT40P080FZK	Screw
	42	PSZ20P060FMC	Screw
	43	PMA30P060FMC	Screw
	44	BBZ20P080FMC	Screw
	45	BBZ30P060FZK	Screw
	46	IBZ30P150FCU	Screw
	47	WA30W120R100	Washer
	48	BPZ20P060FMC	Screw
	101		Main unit
	102		Power SW unit
	103		VR unit
	104		Transistor unit
	105		Display unit
	106		Control SW (C) unit
	107		Control SW (1) unit
	108		Control SW (2) unit
	109		Mechanism unit
	110		Mechanism unit
	111		PCB spacer
	112		Earth lead wire assembly
	113		Main chassis
	114		Power SW holder
	115		Plate
	116		Eject lever (L)
	117		Eject lever (R)
	118		Panel stay
	119		Friction plate
	120		Rear panel

Exterior



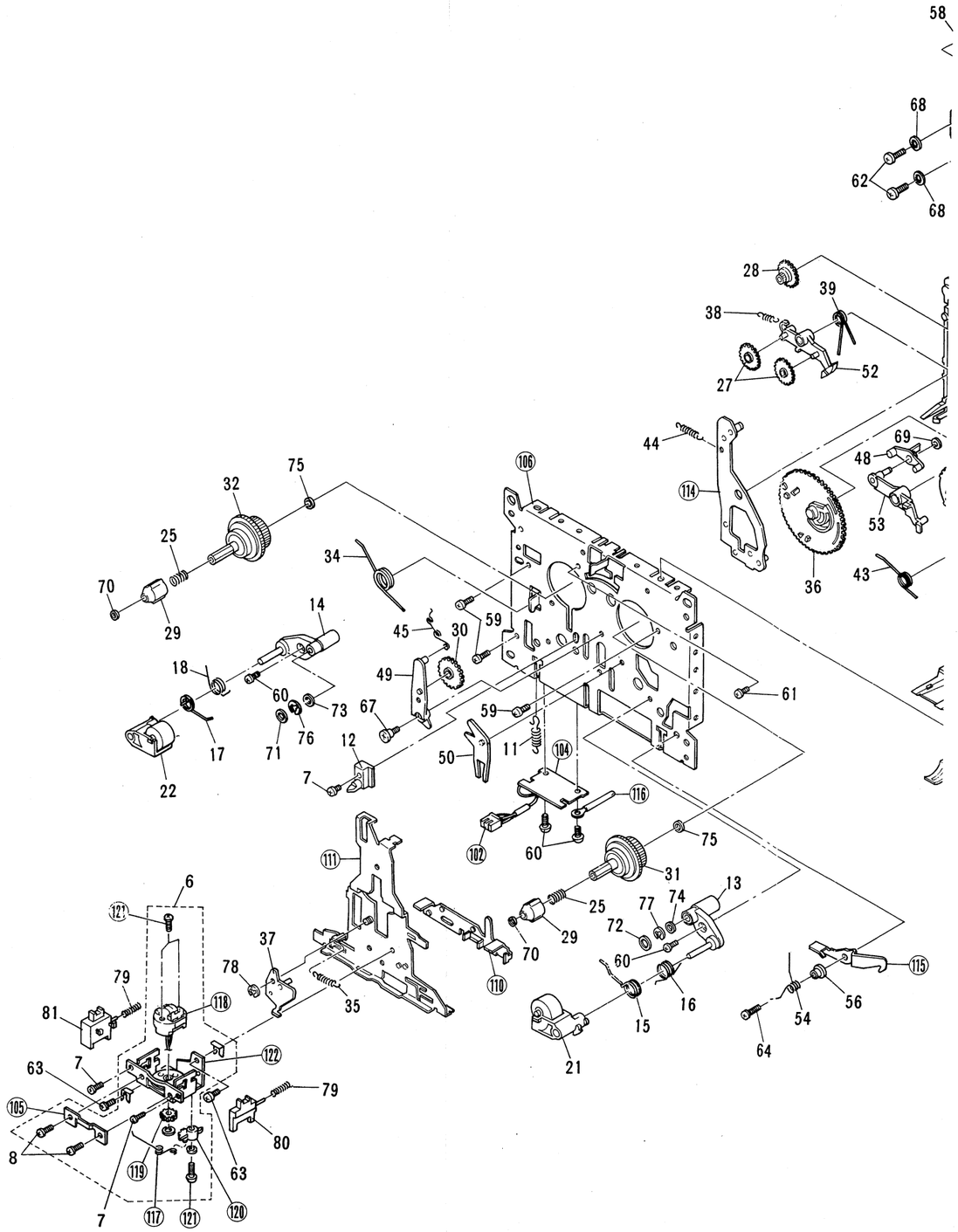
Exterior


1
2
3
4
5
6
A
B
C
D
39
112
109
45
41
37
18
105
117
32
14
6
42
107
23
16
106
40
115
116
5
120
102
114
43
101
46
47
24
119
36
28
21
10
35
13
31
44
11
26
103
104
111
113
12
33
30
19
20
22
27
34
7
15
9
48
25
29
118
108
17

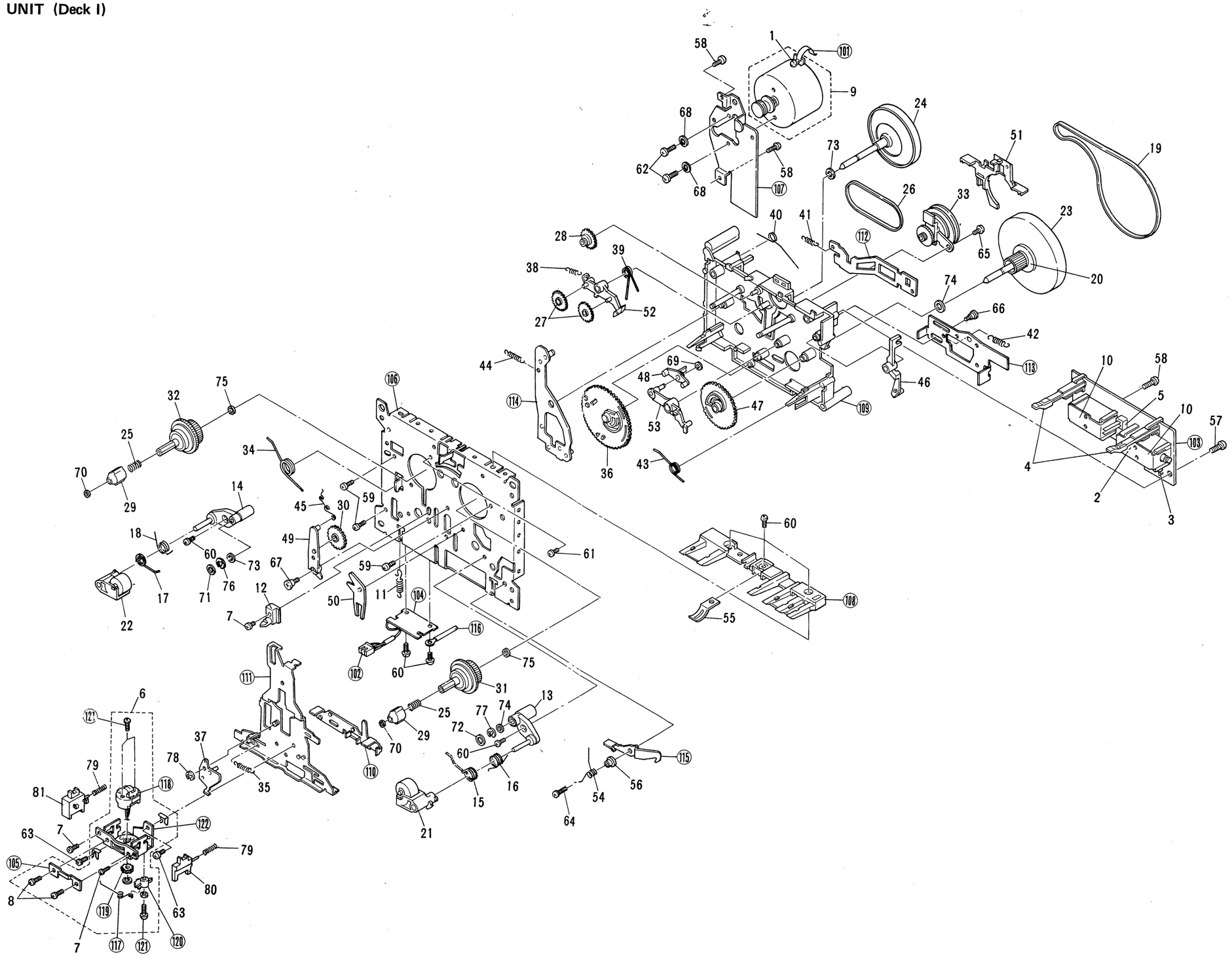
2.2 Parts List of Mechanism Unit (Deck I)

Mark	No.	Part No.	Description
	1	CCDSL101J50	Ceramic capacitor
	2	NJL5165K	Photo reflector
	3	RD¼PM152J	Resistor
	4	RSN1011	Rec switch
	5	RSN1012	Leaf switch
	6	RXA1139	Rotation head assembly P
	7	RBA1040	Tape guide screw
	8	RBA1041	Azimuth screw
	9	RXA1193	Motor (YD) B assembly
	10	RXP1008	Solenoid assembly (B)
	11	RBH1120	Earth spring
	12	RNK1242	Cassette guide
	13	RXA1136	Housing (R) assembly
	14	RXA1137	Housing (L) assembly
	15	RBH1111	P roller (RA) spring
	16	RBH1112	P roller (RB) spring
	17	RBH1113	P roller (LA) spring
	18	RBH1114	P roller (LB) spring
	19	REB1054	Drive belt (M)
	20	RNK1329	Flywheel gear (B)
	21	RXA1130	P roller (R) assembly
	22	RXA1131	P roller (L) assembly
	23	RXA1187	Flywheel (RE)
	24	RXA1188	Flywheel (LF)
	25	RBH1101	Reel spring (E)
	26	REB1055	Clutch belt (E)
	27	RNK1233	FR gear
	28	RNK1234	REW gear
	29	RNK1236	Reel cap (B)
	30	RNK1241	Play gear
	31	RXA1189	Reel sub assembly (B)
	32	RXA1191	Reel assembly (B)
	33	RXA1192	Clutch (B) assembly
	34	RBH1154	H chassis spring (B)
	35	RBH1155	Shift arm spring (D)
	36	RNK1344	PL cam gear (B)
	37	RXA1190	Shift arm (B) assembly
	38	RBH1099	FR arm (A) spring
	39	RBH1100	FR arm (B) spring
	40	RBH1102	Brake spring
	41	RBH1103	FR lever spring (B)
	42	RBH1104	FR lever spring
	43	RBH1105	FR shift spring
	44	RBH1106	PL trigger spring (B)
	45	RBH1107	Play arm spring
	46	RNG1020	Trigger arm (FR) • B
	47	RNK1235	FR cam gear
	48	RNK1238	Select arm (B)
	49	RNK1240	Play gear arm
	50	RNK1243	RV arm
	51	RNK1345	Brake arm (B)
	52	RXA1127	FR arm assembly
	53	RXA1133	FR shift arm (B) assembly
	54	RBH1156	Eject lock arm (R) SPB
	55	RBK1012	Pack spring
	56	RLA1109	Lock arm collar
	57	BBZ20P060FMC	Screw
	58	BBZ20P080FMC	Screw
	59	PBZ20P080FMC	Screw
	60	PCZ20P040FMC	Screw
	61	PMZ20P030FMC	Screw
	62	PMZ26P030FMC	Screw
	63	RBA1038	Tap tite screw
	64	RBA1039	Bind tapping screw
	65	RBA1050	Screw (F)
	66	RBA1051	Screw (RV)
	67	RBA1052	Screw (PL)
	68	RBE1004	Tooted lock washer
	69	RBF−057	Polyslider washer
	70	RBF−076	Polyslider washer
	71	RBF1013	Nylon washer
	72	RBF1014	Nylon washer
	73	RBF1020	Polyslider washer
	74	RBF1021	Polyslider washer
	75	WA21D040D025	Washer
	76	YE15FUC	E ring
	77	YE20FUC	E ring
	78	YE25FUC	E ring
	79	RBH1110	Tape guide spring
	80	RNK1244	Tape guide (R)
	81	RNK1245	Tape guide (L)
	101		Motor wire (B)
	102		3P head wire assembly
	103		Mechanism P.C.B (PIT B)
	104		Head P.C.B (B)
	105		Azimuth spring
	106		Chassis
	107		Motor holder (C)
	108		SW protector
	109		Mechanism base (B) assembly
	110		RV lever (B)
	111		Head chassis (B) assembly
	112		FR lever
	113		RV lever (A) assembly
	114		TR arm (P) assembly
	115		Eject lock arm (R)
	116		Cord clamp
	117		Return spring
	118		PB head
	119		Rotation gear
	120		Return gear
	121		Head screw RVS
	122		Head base assembly

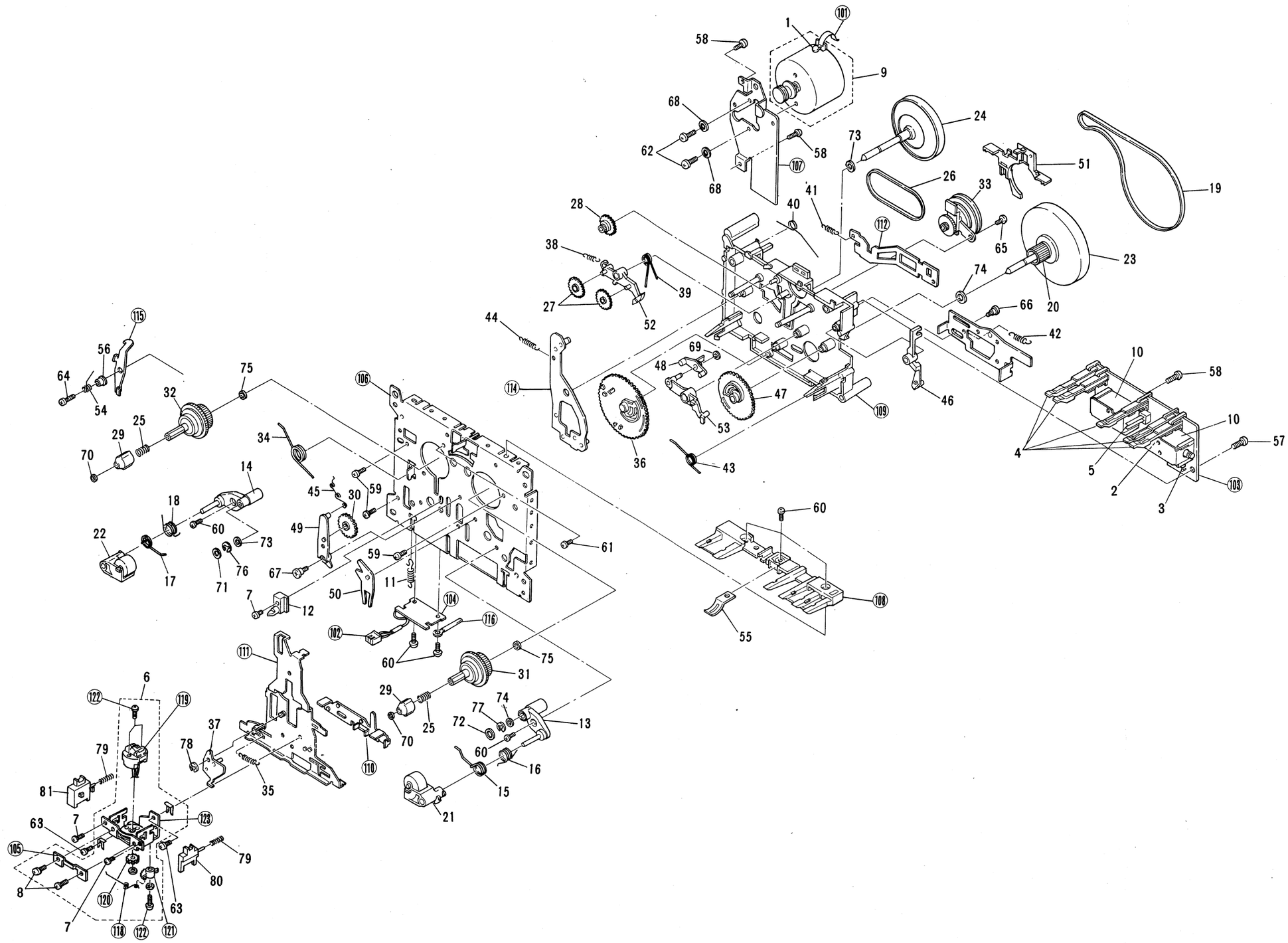
MECHANISM UNIT (Deck I)



MECHANISM UNIT (Deck I)



2.3 MECHANISM UNIT (Deck II)



Parts Li

Mark	N
A	
	1
B	1
	1
	1
	1
	1
	1
	1
	1
	1
	2
	2
	2
	2
	2
	2
	2
	2
	2
	2
	2
	3
	3
	3
	3
	3
	3
	3
	3
	3
	4
	4
	4
	4
	4
	4
	4
	4
	4
	5
	5
	5
	5
	5

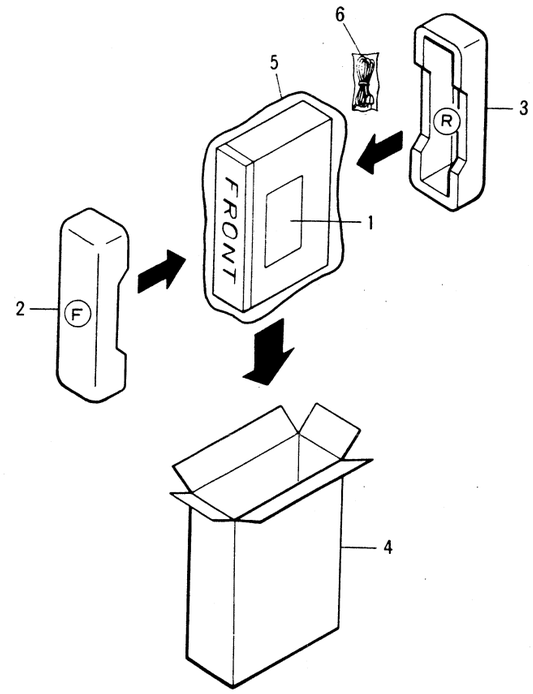
Parts List of Mechanism Unit (Deck II)

Mark	No.	Part No.	Description
	1	CCDSL101J50	Ceramic capacitor
	2	NJL5165K	Photo reflector
	3	RD¼PM152J	Resistor
	4	RSN1011	Rec switch
	5	RSN1012	Leaf switch
	6	RXA1138	Rotation head (RP)
	7	RBA1040	Tape guide screw
	8	RBA1041	Azimuth screw
	9	RXA1193	Motor (YD) B assembly
	10	RXP1008	Solenoid assembly (B)
	11	RBH1120	Earth spring
	12	RNK1242	Cassette guide
	13	RXA1136	Housing (R) assembly
	14	RXA1137	Housing (L) assembly
	15	RBH1111	P roller (RA) spring
	16	RBH1112	P roller (RB) spring
	17	RBH1113	P roller (LA) spring
	18	RBH1114	P roller (LB) spring
	19	REB1054	Drive belt (M)
	20	RNK1329	Flywheel gear (B)
	21	RXA1130	P roller (R) assembly
	22	RXA1131	P roller (L) assembly
	23	RXA1187	Flywheel (RE)
	24	RXA1188	Flywheel (LF)
	25	RBH1180	Reel spring (F)
	26	REB1055	Clutch belt (E)
	27	RNK1233	FR gear
	28	RNK1234	REW gear
	29	RNK1236	Reel cap (B)
	30	RNK1241	Play gear
	31	RXA1189	Reel sub assembly (B)
	32	RXA1191	Reel assembly (B)
	33	RXA1192	Clutch (B) assembly
	34	RBH1154	H chassis spring (B)
	35	RBH1155	Shift arm spring (D)
	36	RNK1344	PL cam gear (B)
	37	RXA1190	Shift arm (B) assembly
	38	RBH1099	FR arm (A) spring
	39	RBH1100	FR arm (B) spring
	40	RBH1102	Brake spring
	41	RBH1103	FR lever spring (B)
	42	RBH1104	FR lever spring
	43	RBH1105	FR shift spring
	44	RBH1106	PL trigger spring (B)
	45	RBH1107	Play arm spring
	46	RNG1020	Trigger arm (FR) • B
	47	RNK1235	FR cam gear
	48	RNK1238	Select arm (B)
	49	RNK1240	Play gear arm
	50	RNK1243	RV arm
	51	RNK1345	Brake arm (B)
	52	RXA1127	FR arm assembly
	53	RXA1133	FR shift arm (B) assembly
	54	RBH1157	Eject lock arm (L) spring
	55	RBK1012	Pack spring
	56	RLA1109	Lock arm collar
	57	BBZ20P060FMC	Screw
	58	BBZ20P080FMC	Screw
	59	PBZ20P080FMC	Screw
	60	PCZ20P040FMC	Screw
	61	PMZ20P030FMC	Screw
	62	PMZ26P030FMC	Screw
	63	RBA1038	Tap tite screw
	64	RBA1039	Bind tapping screw
	65	RBA1050	Screw (F)
	66	RBA1051	Screw (RV)
	67	RBA1052	Screw (PL)
	68	RBE1004	Tooted lock washer
	69	RBF−057	Polyslider washer
	70	RBF−076	Polyslider washer
	71	RBF1013	Nylon washer
	72	RBF1014	Nylon washer
	73	RBF1020	Polyslider washer
	74	RBF1021	Polyslider washer
	75	WA21D040D025	Washer
	76	YE15FUC	E ring
	77	YE20FUC	E ring
	78	YE25FUC	E ring
	79	RBH1110	Tape guide spring
	80	RNK1244	Tape guide (R)
	81	RNK1245	Tape guide (L)
	101		Motor wire (B)
	102		3P head wire assembly
	103		Mechanism P.C.B (PIT B)
	104		Head P.C.B (B)
	105		Azimuth spring
	106		Chassis
	107		Motor holder (C)
	108		SW protector
	109		Mechanism base (B) assembly
	110		RV lever (B)
	111		Head chassis (B) assembly
	112		FR lever
	113		RV lever (A) assembly
	114		TR arm (P) assembly
	115		Eject lock pit (L)
	116		Cord clamp
	117		2P head wire assembly
	118		Return spring
	119		R/P, E head
	120		Rotation gear
	121		Return gear
	122		Head screw RVS
	123		Head base assembly

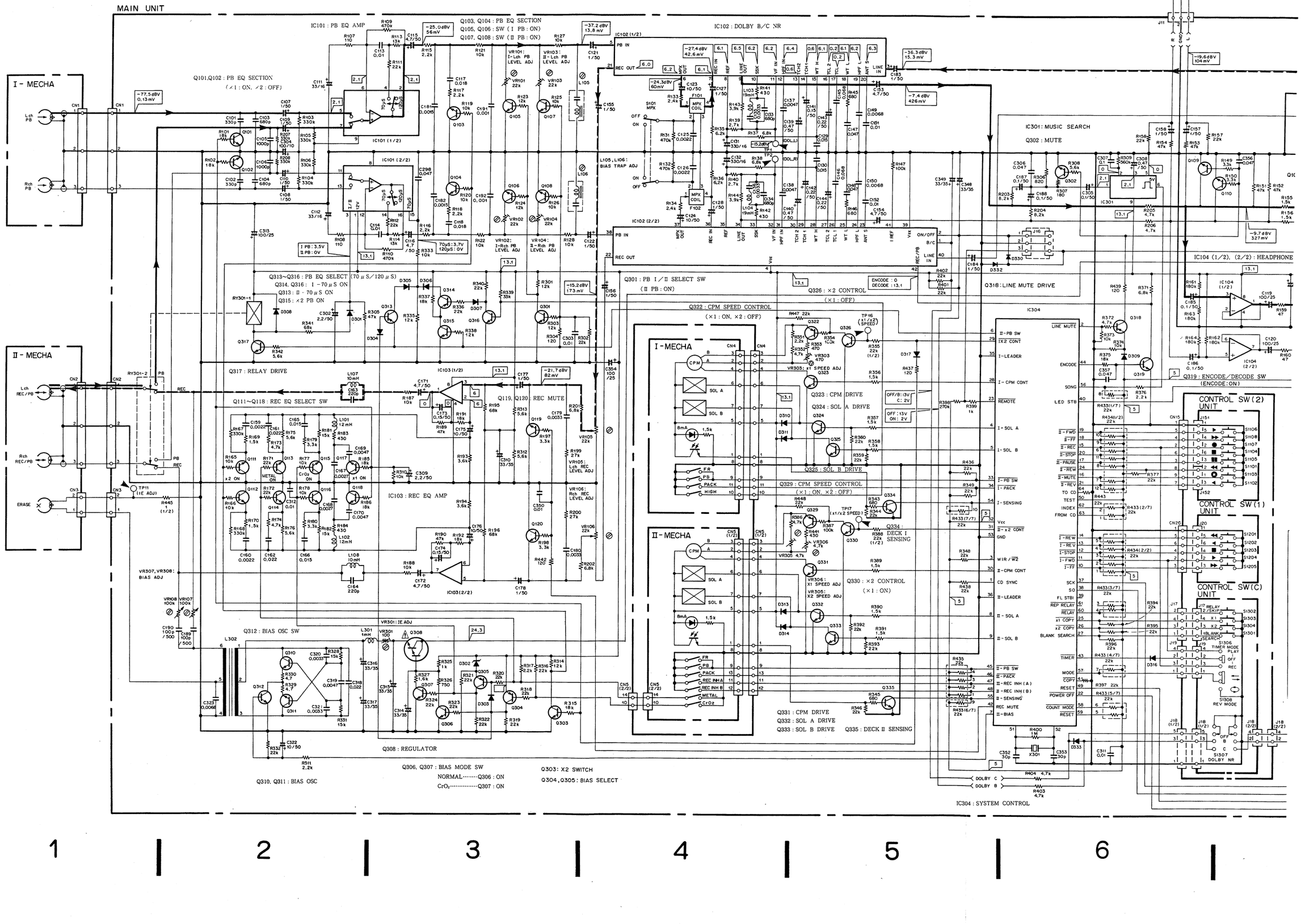
3. PACKING

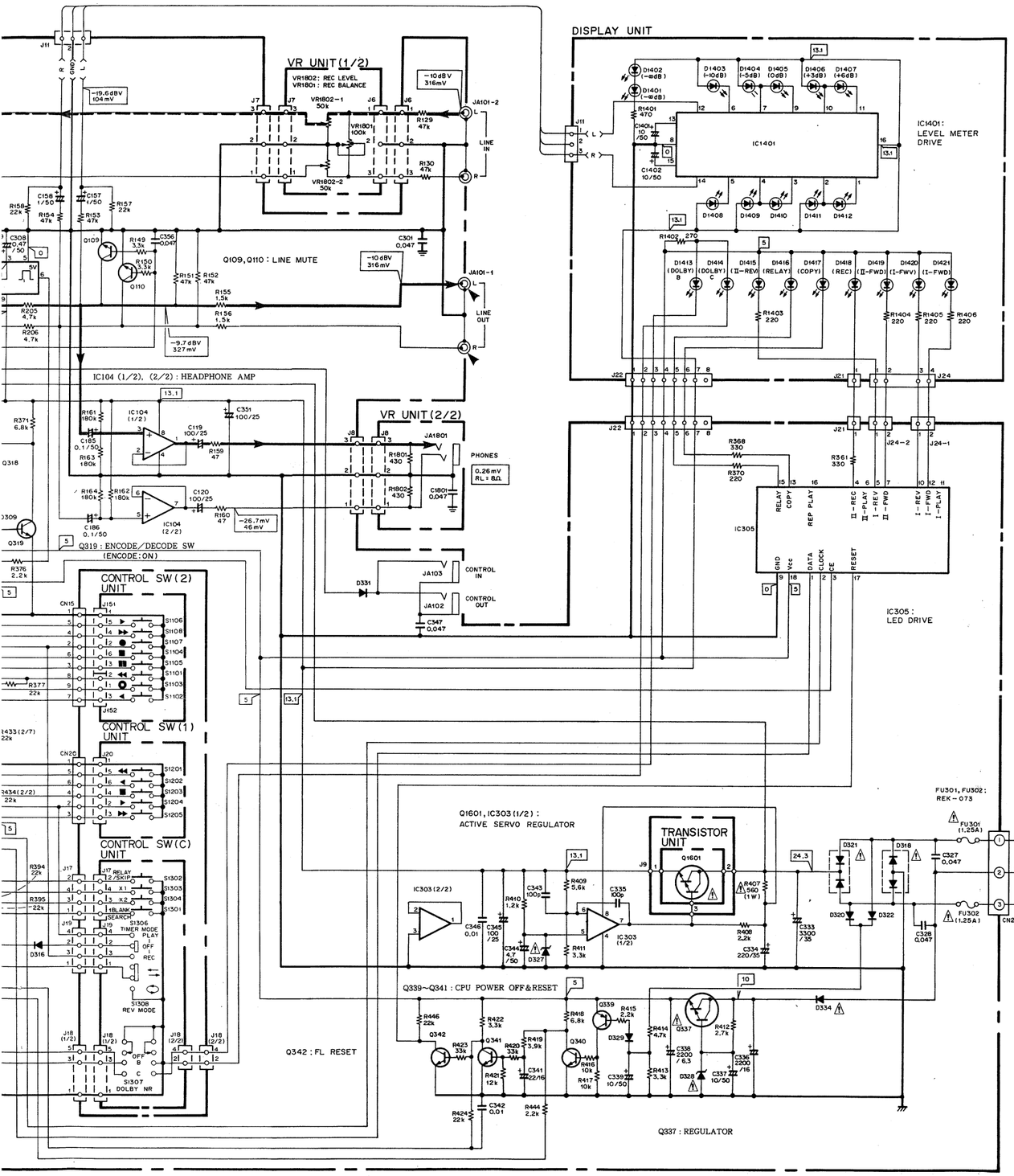
Parts rist

Mark	No.	Part No.	Description
	1	RRB1031	Operating instructions (English)
	2	RHA1023	Pad (A)
	3	RHA1024	Pad (B)
	4	RHG1093	Packing case
	5	RHX−034	Sheet
	6	RDE−010	Connection cord



4. SCHEMATIC DIAGRAM





Main Unit	
IC301	BA335
IC102	CX20187
IC305	PD0012A
IC304	PD3113A
IC101	TA7784P
IC103, IC104, IC303	M5218L
Q304, Q305, Q313, Q314, Q318, Q322, Q329, Q339	2SA1309A
Q310, Q311	2SC3243
Q323–325, Q331–Q333	2SC3246
Q101–Q108, Q111–Q120, Q301–Q303, Q306, Q307, Q315–Q317, Q319, Q326, Q330, Q334, Q335, Q340–Q342	2SC3311A
Q109, Q111, Q312	2SD1302
Q308, Q337	2SD1796
D302	MTZ3.6A
D327	MTZ5.1B
D328	MTZJ6.2C
D321	1B2C1–LC2
D318	1B2Z1–LC2
D334	1SR35–100A
D310, D311, D313, D314	1SR35–100A
D301, D303–D309, D316, D317, D320, D322, D329–D333	1SS254
S101	RSH1010
RY301	RSR–039
L302	RTD1016
L301	RTF1061
L101, L102	RTF1055
L105, L106	RTF1060
L103, L104	RTF1063
L107, L108	RTF1004
F101, F102	RTF1059
R435	RCX1009
R433	RCX1011
R434	RCX1012
VR301	RCP–031
VR107, VR108	VRTB6VS104
VR101–VR106	VRTB6VS223
VR303, VR306	VRTG6VS472
VR305	VRTS6VS472
X301	RSS–035

VR Unit	
VR1802	RCV1002
VR1801	RCV1003
Display Unit	
IC1401	IR2E27A
D1405–D1407, D1410–D1412, D1417, D1418	SEL4214S
D1401–D1404, D1408, D1409, D1413–D1416, D1419–D1421	SEL4914A–X
Transistor Unit	
Q1601	2SD1796
Control SW (C) Unit	
S1301–S1304	RSG–155
S1306, S1308	RSH1001
S1307	RSH1002
Control SW (1) Unit	
S1201–S1205	RSG–155
Control SW (2) Unit	
S1101–S1108	RSG–155
Power SW Unit	
S1701	RSA–063
C1701	RCG–009

1. RESISTORS:
   Indicated in Ω, 1/4W and 1/6W ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% tolerance
2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
   ▭: DC voltage (V) at no input signal Value in ( ) is DC voltage at rated power.
4. OTHERS:
   ➡: Signal route.
   ⊘: Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.
   The underlined indicates the switch position.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.
5. SWITCHES:

   THE UNDERLINED INDICATES THE SWITCH POSITION

   Control SW (C) unit
   - S1301 : BLANK SEARCH
   - S1302 : RELAY/SKIP
   - S1303 : NORMAL SPEED
   - S1304 : HIGH SPEED
   - S1306 : TIMER MODE — REC–OFF–PLAY
   - S1307 : DOLBY NR — OFF–B–C
   - S1308 : REVERSE MODE — ⇄–(⇄)

   Control SW (1) unit
   - S1201 : ⏮MS (REW)
   - S1202 : ◀REV
   - S1203 : ■STOP
   - S1204 : ▶PLAY
   - S1205 : ⏭MS (FF)

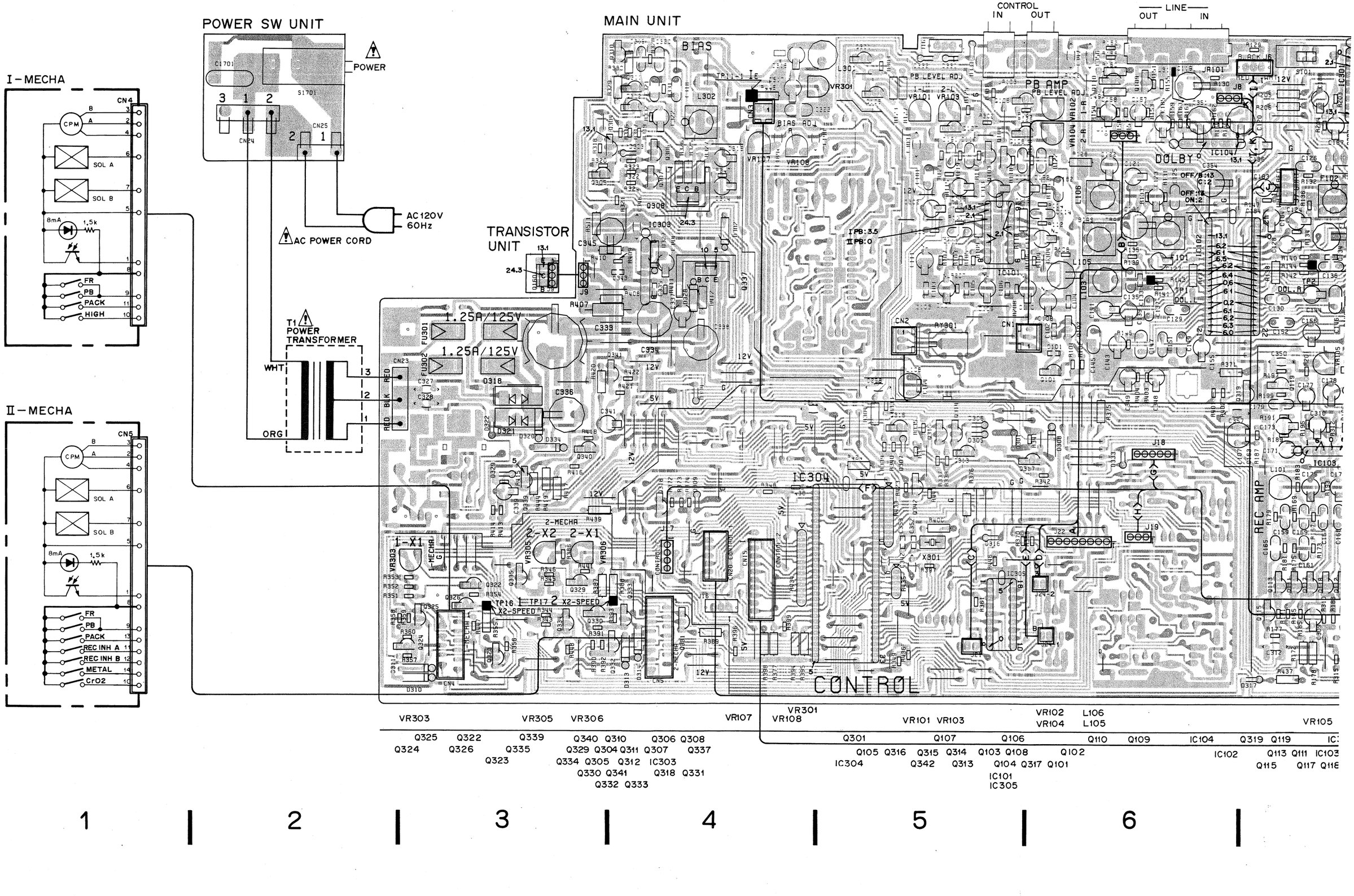
   Control SW (2) unit
   - S1101 : ⏮MS (REW)
   - S1102 : ◀REV
   - S1103 : ●MUTE
   - S1104 : ■STOP
   - S1105 : ❚❚PAUSE
   - S1106 : ▶PLAY
   - S1107 : ●REC
   - S1108 : ⏭MS (FF)

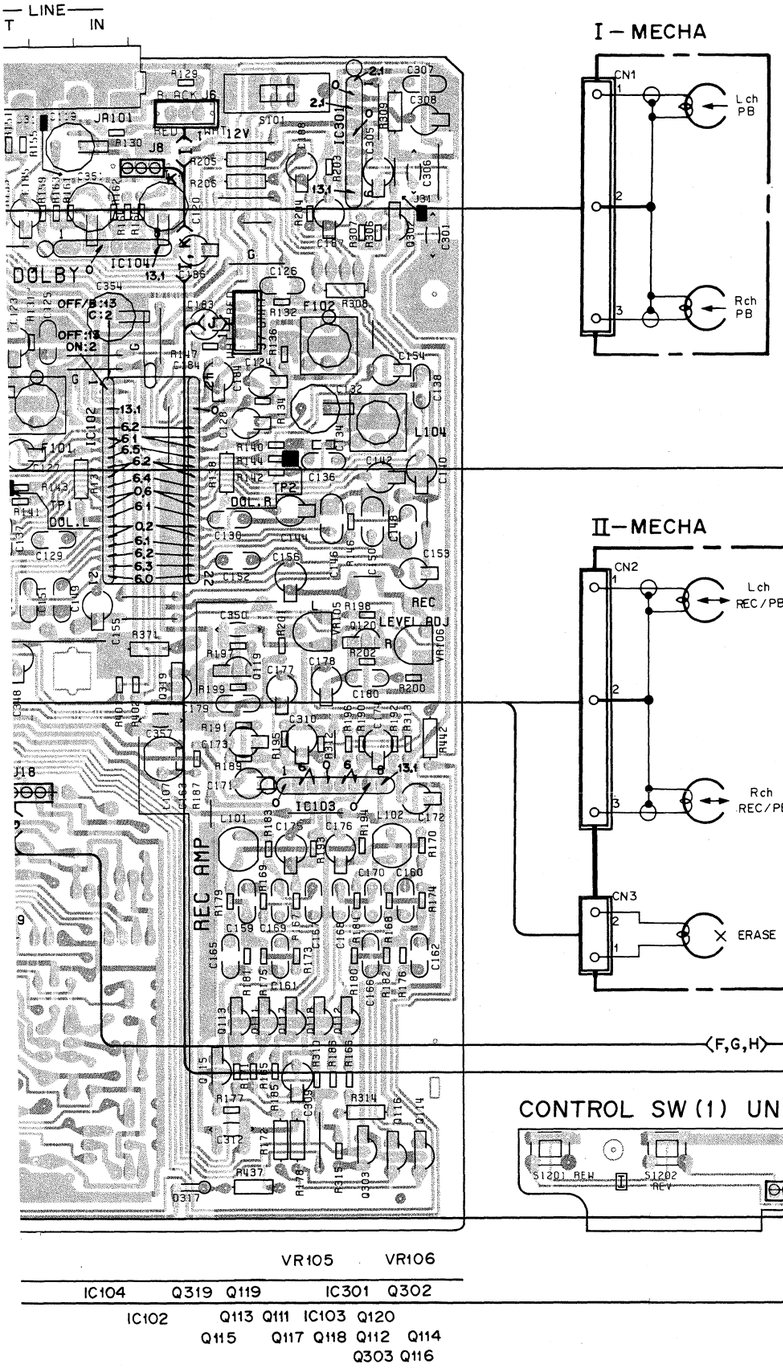
   Power SW unit
   - S1701 : POWER — ON–OFF

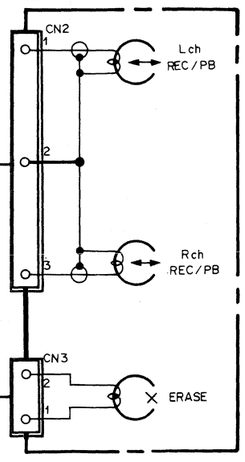
   Main unit
   - S101 : MPX FILTER — ON–OFF

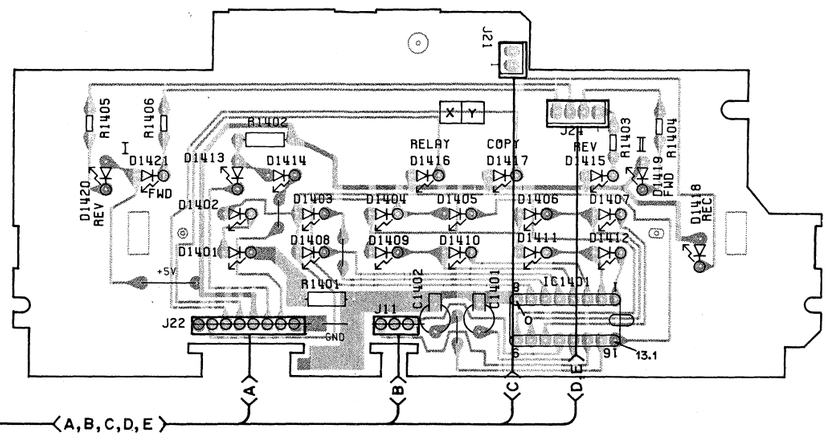
5. P.C. BOARDS CONNECTION DIAGRAM

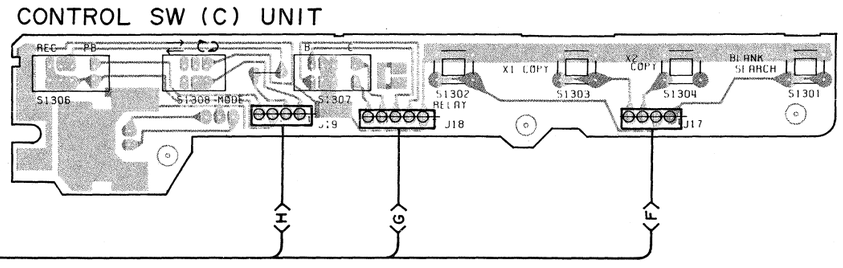
- **View from component side**

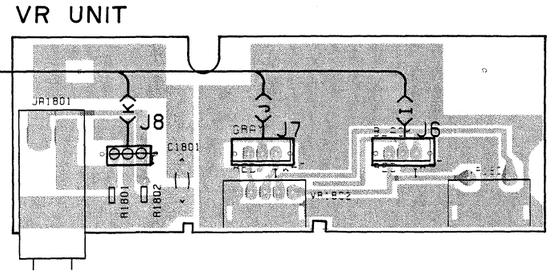


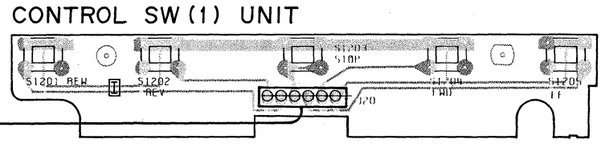


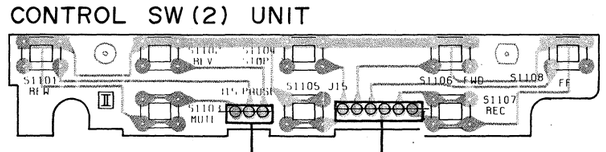












P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
		Zenner diode			Electrolytic capacitor (Non polarized)
		LED			Electrolytic capacitor (Noiseless)
		Varactor			Electrolytic capacitor (Polarized)
		Tact switch			Electrolytic capacitor (Polarized)
		Inductor			Power capacitor
		Coil			Semi-fixed resistor
		Transformer			Resistor array
		Filter			Resistor
					Resonator
					Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

CONTROL SW (1) UNIT

CONTROL SW (2) UNIT

AV UNIT

CONTROL SW (C) UNIT

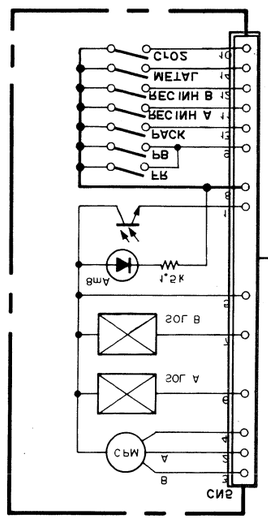
II-MECHA

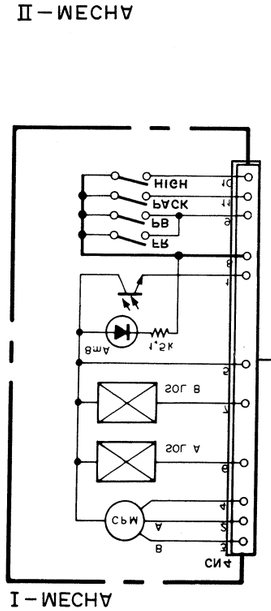
I-MECHA

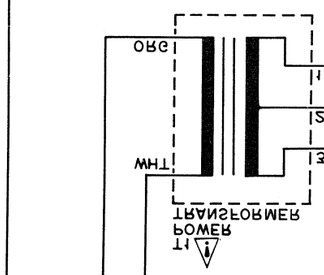
DISPLAY UNIT

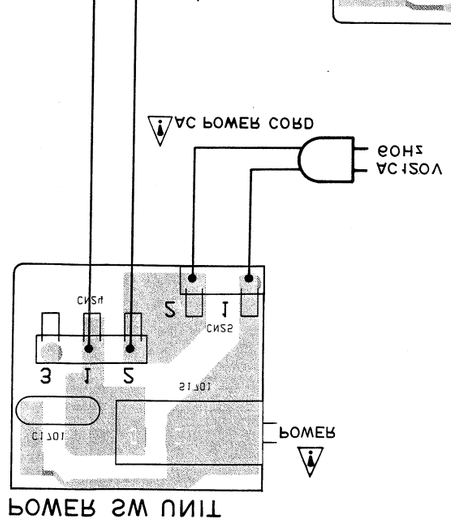
2. P.C. BOARDS CONNECTION DIAGRAM

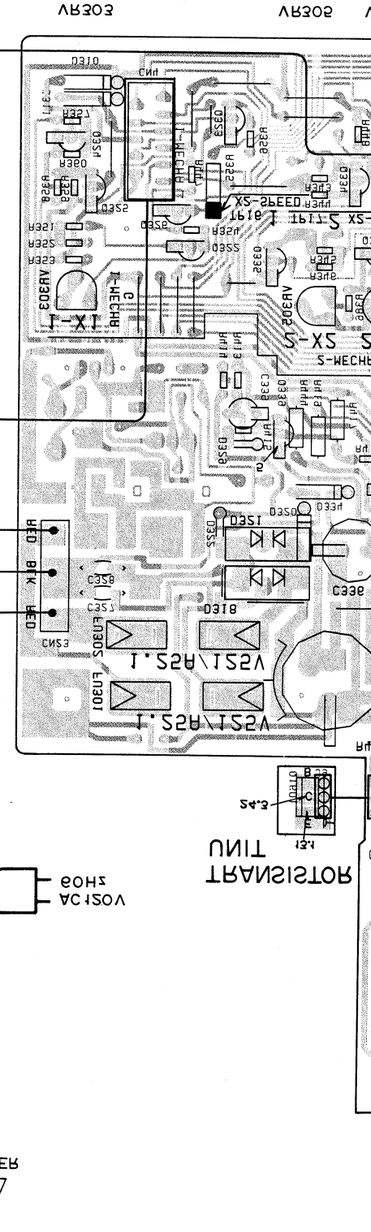
• View from soldering side











6. ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	56×10^{1}	561	RD1/4PS 5 6 1 J
47k Ω	47×10^{3}	473	RD1/4PS 4 7 3 J
0.5 Ω	0R5		RN2H 0 R 5 K
1 Ω	010		RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	562×10^{1}	5621	RN1/4SR 5 6 2 1 F

Miscellaneous Parts

P. C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	Main unit	
	Power SW unit	
	VR unit	
	Transistor unit	
	Display unit	
	Control SW (C) unit	
	Control SW (1) unit	
	Control SW (2) unit	

OTHERS

Mark	Symbol & Description	Part No.
⚠	AC power cord	RDG-064
⚠	FU101, FU102, Fuse (1.25A)	REK-073
⚠	T1 Power transformer	RTT1047
	Ceramic capacitor	CCDSL101J50
	Photo reflector	NJL5165K
	Resistor	RD¼PM152J
	Rec switch	RSN1011
	Leaf switch	RSN1012
	Rotation head assembly P	RXA1139
	Rotation head (RP)	RXA1138
	Motor (YD) B assembly	RXA1193
	Solenoid assembly (B)	RXP1008

Main unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301	BA335
	IC102	CX20187
	IC103, IC104, IC303	M5218L
	IC305	PD0012A
	IC304	PD3113A
	IC101	TA7784P
	Q304, Q305, Q313, Q314, Q318, Q322, Q329, Q339	2SA1309A
	Q310, Q311	2SC3243
	Q323-Q325, Q331-Q333	2SC3246
	Q101-Q108, Q111-Q120, Q301-Q303, Q306, Q307, Q315-Q317, Q319, Q326, Q330, Q334, Q335, Q340-Q342	2SC3311A
	Q109, Q110, Q312	2SD1302
⚠	Q308, Q337	2SD1796
⚠	D328	MTZJ6.2C
	D302	MTZ3.6A
⚠	D327	MTZ5.1B
⚠	D321	1B2C1-LC2
⚠	D318	1B2Z1-LC2
	D310, D311, D313, D314	1SR35-100A
⚠	D334	1SR35-100A
	D301, D303-D309, D316, D317, D320, D322, D329-D333	1SS254

SWITCH AND RELAY

Mark	Symbol & Description	Part No.
	S101 Slide switch (MPX FILTER)	RSH1010
	RY301 Relay (REC/PB)	RSR-039

COILS AND FILTER

Mark	Symbol & Description	Part No.
	L302 Oscillator coil	RTD1016
	L107, L108 Coil (10mH)	RTF1004
	L101, L102 Peaking coil (12mH)	RTF1055
	L105, L106 Trap coil	RTF1060
	L301 Line coil (1mH)	RTF1061
	L103, L104 Coil (19mH)	RTF1063
	F101, F102 MPX Filter	RTF1059

CAPACITORS

Mark	Symbol & Description	Part No.
	C189, C190	CCCSL101K500
	C352, C353	CCPUSL300J50
	C107–C110	CEANL010M50
	C304	CEANL101M10
	C111, C112	CEANL330M16
	C185–C188, C305	CEASR10M50
	C141, C142, C173, C174	CEASR15M50
	C143, C144	CEASR22M50
	C139, C140, C308	CEASR47M50
	C121, C122, C127, C128, C155–C158, C177, C178, C183, C184	CEAS010M50
	C123, C124, C175, C176, C322, C337, C339	CEAS100M50
	C119, C120, C313, C345, C351, C354	CEAS101M25
	C302, C309	CEAS2R2M50
	C341	CEAS220M16
	C334	CEAS221M35
	C336	CEAS222M16
	C338	CEAS222M6R3
	C310, C314–C317, C348, C349	CEAS330M35
	C131, C132	CEAS331M16
	C333	CEAS332M35
	C115, C116, C153, C154, C171, C172, C344	CEAS4R7M50
	C191, C192	CFTXA102J50
	C113, C114, C151, C152	CFTXA103J50
	C181, C182	CFTXA152J50
	C129, C130, C165, C166	CFTXA153J50
	C117, C118	CFTXA183J50
	C125, C126, C159, C160	CFTXA222J50
	C161, C162, C318	CFTXA223J50
	C167, C168	CFTXA272J50
	C135, C136, C179, C180, C320, C321	CFTXA332J50
	C137, C138, C169, C170, C319	CFTXA472J50
	C147, C148	CFTXA473J50
	C149, C150	CFTXA682J50
	C145, C146	CFTXA683J50
	C307	CGCYX104K25
	C303, C311, C312, C342, C346, C350	CKCYF103Z50
	C298, C301, C306, C327, C328, C347, C356, C357	CKCYF473Z50
	C335, C343	CKPUYB101K50
	C105, C106	CKPUYB102K50
	C163, C164	CKPUYB221K50
	C101, C102	CKPUYB331K50
	C103, C104, C133, C134	CKPUYB681K50
	C323	CQPA682J100

RESISTORS

Mark	Symbol & Description	Part No.
	R433 Resistor array (22k×10)	RCX1011
	R434 Resistor array (22k×12)	RCX1012
	R435 Resistor array (22k×4)	RCX1009
	VR107, VR108 Semi-fixed (100k) (BIAS ADJ)	VRTB6VS104
	VR101–VR106 Semi-fixed (22k) (REC/PB LEVEL ADJ)	VRTB6VS223
	VR301 Semi-fixed (100B)	RCP-031
	VR303, VR306 Semi-fixed (4.7k) (X1 SPEED ADJ)	VRTG6VS472
	VR305 Semi-fixed (4.7k) (X2 SPEED ADJ)	VRTS6VS472
⚠	R407	RS1LF561J
	R355, R388, R445	RD½LF□□□J
	R109, R110, R123, R127, R128, R137, R138, R149, R150, R172, R178, R205, R206, R304, R308, R309, R314, R325–R327, R329, R330, R371, R375–R377, R387, R389, R394, R395, R398, R400, R408, R410, R412, R417, R419, R420, R424, R437, R439, R442, R444, R511	RD¼PM□□□J
	Other resistors	RD⅙PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	JA101 4P Pin jack (LINE IN/OUT)	RKB1001
	JA102, JA103 Jack φ3.5 (CONTROL IN/OUT)	RKN-071
	X301 Ceramic resonator	RSS-035

Power SW unit

SWITCH

Mark	Symbol & Description	Part No.
⚠	S1701 Push switch (POWER)	RSA-063

CAPACITOR

Mark	Symbol & Description	Part No.
⚠	C1701 (0.01 μF/400V)	RCG-009

VR unit

CAPACITOR

Mark	Symbol & Description	Part No.
	C1801	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR1802 Variable resistor (50kA×2 REC LEVEL)	RCV1002
	VR1801 Variable resistor (100kB REC BALANCE)	RCV1003
	R1801, R1802	RD ⅛ PM431J

OTHER

Mark	Symbol & Description	Part No.
	JA1801 Jack (PHONES)	RKN1002

Transistor unit

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
⚠	Q1601	2SD1796

Display unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1401	IR2E27A
	D1405–D1407, D1410–D1412, D1417, D1418	SEL4214S
	D1401–D1404, D1408, D1409, D1413–D1416, D1419–D1421	SEL4914A–X

CAPACITORS

Mark	Symbol & Description	Part No.
	C1401, C1402	CEAS100M50

RESISTORS

Mark	Symbol & Description	Part No.
	R1403–R1406	RD ⅛ PM221J
	Other resistors	RD¼PM□□□J

Control SW (C) unit

SWITCHES

Mark	Symbol & Description	Part No.
	S1301–S1304 Tact switch (BLANK SEARCH, RELAY/SKIP, NORMAL SPEED, HIGH SPEED)	RSG–155
	S1306, S1308 Slide switch (TIMER MODE, REVERSE MODE)	RSH1001
	S1307 Slide switch (DOLBY NR)	RSH1002

Contorol SW (1) unit

SWITCHES

Mark	Symbol & Description	Part No.
	S1201–S1205 Tact switch (REW, REV, STOP, PLAY, FF)	RSG–155

Contorol SW (2) unit

SWITCHES

Mark	Symbol & Description	Part No.
	S1101–S1108 Tact switch (REW, REV, MUTE, STOP, PAUSE, PLAY, REC, FF)	RSG–155

7. ADJUSTMENTS

7-1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment and Check						
No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Normal speed PLAY	STD-301 (3kHz)	After playing back for 1 minute, ground TP16.		
2		Double speed PLAY		check	6000 Hz ±600 Hz	
3		Normal speed PLAY		After checking, disconnect TP16 from ground.		
4	II			After playing back for 1 minute, ground TP17.		
5		Double speed PLAY		VR305	Within ±10Hz of step 2 (deck I) check value.	
6		Normal speed PLAY		After checking, disconnect TP17 from ground.		
7				VR306	3000 Hz ±5 Hz	
8	I			VR303	Within ±5 Hz of step 7 (deck II) adjustment value.	

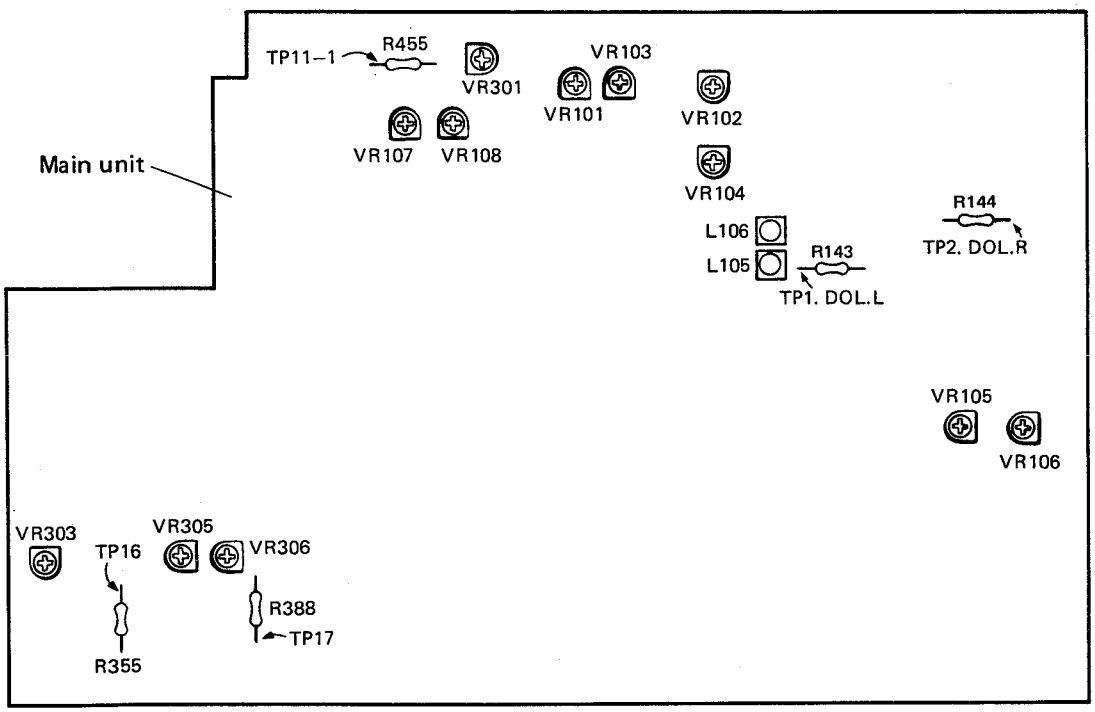


Fig. 7-1 Adjusting points

7-2 ELECTRICAL ADJUSTMENT

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and damagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBv = 1 Vrms.
5. Connect a 50 kilo-ohm (or between 47 to 52 kilo-ohm) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR :OFF
   TAPE SELECTOR :NORM

Test Tapes

STD-331B :Playback adjustments (See Fig. 7-2)
STD-630 :NORMAL blank tape
STD-620 :CrO_2 blank tape
STD-610 :METAL blank tape

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Erase Current Adjustment
2. Recording bias adjustment.
3. Recording level adjustment.
4. Bias trap adjustment

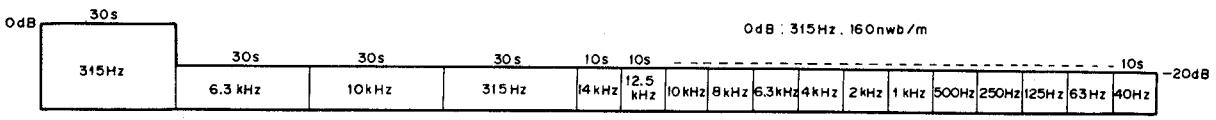


Fig. 7 - 2 . Constants of the test tape STD-331B

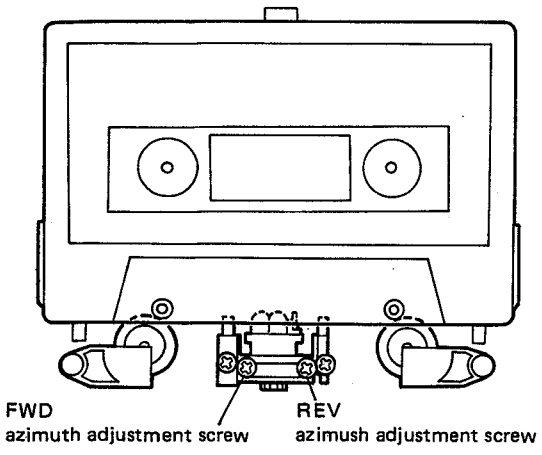


Fig. 7 - 3 . Head azimuth adjustment

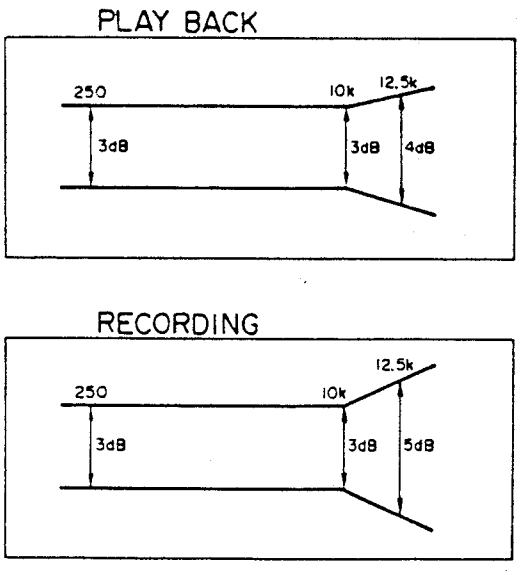


Fig. 7 - 4 . Frequency response zone

PLAYBACK SECTIONS

1. Head Azimuth Adjustment

• Turn VR 101 (Deck I) or VR 102 (Deck II) to mechanical center positions.

NO	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	PLAY	Play the 10kHz/– 20dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 7 - 3)	LINE OUT	Maximum playback signal level	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback level Adjustment

• This adjustment determines the DOLBY NR level, and must be performed with great care.

No	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315Hz/0dB section of the STD-331B test tape.	DeckI	VR 101 (Lch) VR 102 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–15.2 dBv	
			Deck II	VR 103 (Lch) VR 104 (Rch)			

RECODING SECTIONS

1. Erase Current Adjustment

• Adjust the bias oscillator with decks I and II set to recording mode indenpendently. (Double R/P only)

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	Deck II	VR 301	TP. 11-1	180 mV AC	

2. Recording Bias Adjustment

• After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

NO	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC	STD-630 (NORM) –20dB	Deck II	VR 107 (Lch) VR 108 (Rch)	LINE OUT	1.0 dB $\pm^{0.5}_{1.0}$ dB (6.3kHz/315Hz)	Adjustment: FWD Confirmation: REV

3. Recording Level Adjustment

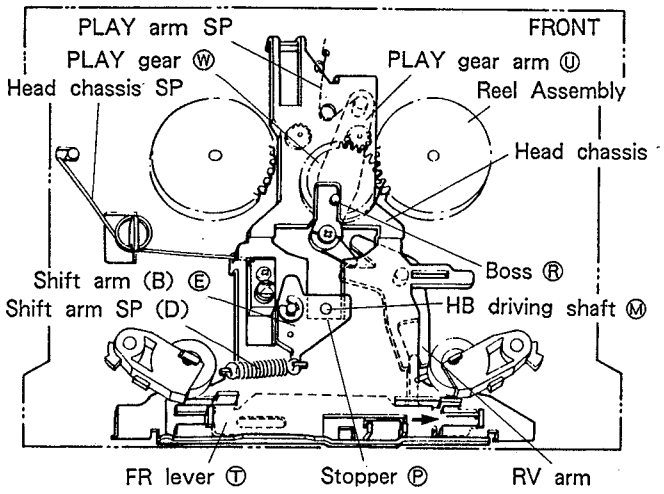
NO	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/0 dBv signal to the Line Input terminals.	Rec Level control		TP. 1 (Lch) TP. 2 (Rch)	–15.2 dBv	
2.		Set the DOLBY NR switch to the ON position. (DOLBY B)					
3.	REC/ PLAY	Record the above signal onto the STD-630 test tape, and playback.	Deck II	VR 105 (Lch) VR 106 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–15.2 dBv	
4.	REC/ PLAY	Record the above signal onto the STD-620 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	–15.2 dBv ± 1.5 dB	
5.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	–15.2 dBv ± 1.5 dB	

4. Bias Trap Adjustment

NO	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	COPY Metal Position	STD-610(METAL)	L105(Lch) L106(Rch)	LINE OUT	Bias leakage output should be MIN.	

8. OPERATION OF DECK MECHANISM UNIT

1. PLAY System Operation



STOP

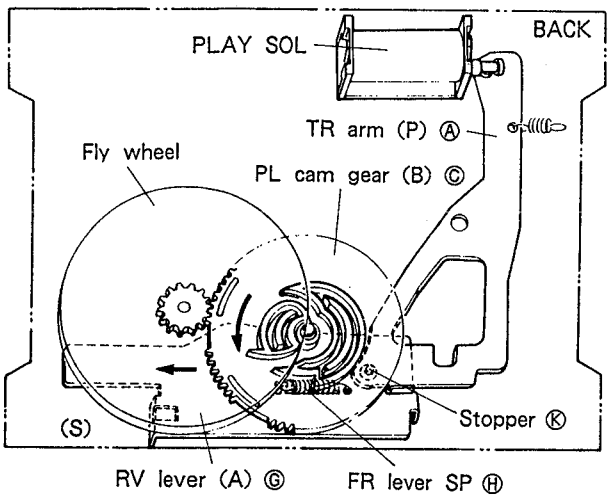


Fig. 8–1

Power–Assist Mechanism

This unit draws power from the fly wheel rotation to raise the head chassis during playback (the stand onto which the recording head and erasing head are mounted) and for rocking F/R arm during FF and REW.

1.1 Stop State

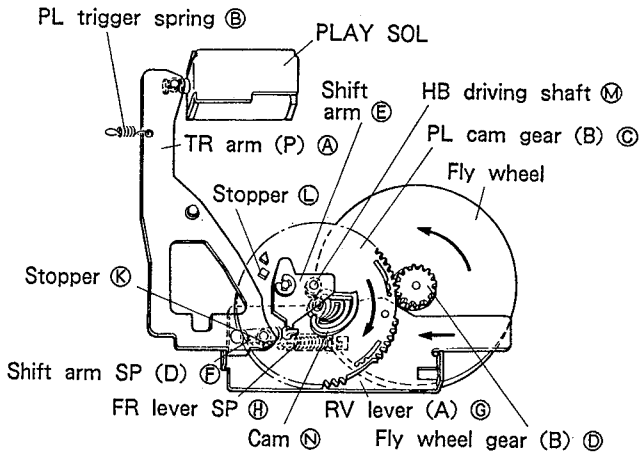


Fig. 8–2

Fig. 8–1 shows the standard positions of head chassis, cam gear, and etc. during STOP.

Fig. 8–2 indicates the PLAY power–assist mechanism during STOP. In the figure, cam Ⓝ and stopper Ⓚ, Ⓛ are each formed on both the front and back sides of PL cam gear (B) Ⓒ.

Fly wheel is belt–driven by capstan motor, and together with fly wheel gear (B) Ⓓ, rotates counterclockwise.

In the figure, HB driving shaft Ⓜ is fixed to shift arm which is supported with shaft on head chassis. It receives rotation power in the clockwise direction at shift arm SP (D) Ⓕ, that power is held by stopper Ⓟ of lower end of the through hole in the center of head chassis.

Head chassis receives the spring power of head chassis SP and is pressed down. With this downward force, HB driving shaft Ⓜ of the shift arm contacts the slope of the short piece side of cam Ⓝ inside PL cam gear (B) Ⓒ, therefore it provides clockwise rotation power to PL cam gear (B) Ⓒ.

At this time, since the play solenoid doesn't pull TR arm (P) Ⓐ, the pin inside TR arm (P) Ⓐ bites in with stopper Ⓚ, pushed by PL trigger spring Ⓑ, thus PL cam gear (B) Ⓒ is prevented from rotating.

RV lever (A) Ⓖ also shifts to the right, as the figure indicates.

PLAY gear arm Ⓤ is supported with shaft on the chassis, and its one end receives rotation power in the clockwise direction by PLAY arm SP. Boss Ⓡ molded as attached to PLAY gear arm Ⓤ contacts the right wall of head chassis central through hole, and PLAY gear Ⓦ and reel assembly do not engage each other, which would prevent reel assembly from rotating.

1.2 STOP→FWD PLAY (Refer to Fig. 8–3.)

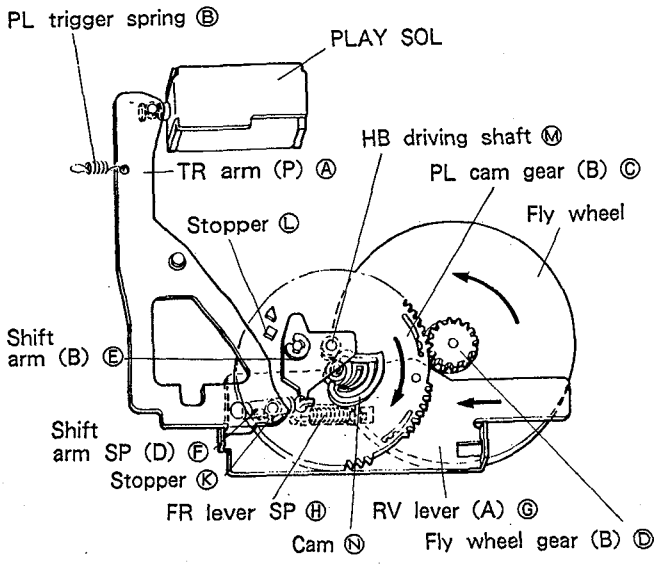


Fig. 8–3

1) PLAY solenoid pulls.
2) The pin of arm Ⓐ comes off stopper Ⓚ. (RV lever (A) Ⓖ moves to the left in a movement linked with arm Ⓐ.)
3) Head chassis lowers as it is pressed down by head chassis SP, and gear Ⓒ rotates through HB driving shaft Ⓜ inside shift arm.
4) Two gears Ⓒ and Ⓓ, engage each other.
5) The playing solenoid is released. (RV lever (A) Ⓖ returns to the right in a movement linked with arm Ⓐ.)

(Refer to Fig. 8–4.)

6) Gear Ⓒ continues rotating due to the rotation of gear Ⓓ.
7) Cam Ⓝ pushes up driving shaft Ⓜ.
8) Gear Ⓒ comes off gear Ⓓ when driving shaft Ⓜ passes its highest point.
9) Gear Ⓒ tries to continues rotating due to driving shaft Ⓜ pressing force and cam Ⓝ slope action. However, stopper Ⓛ hits the pin on arm Ⓐ and halts the rotation of gear Ⓒ. At the same time, driving shaft Ⓜ stops in the rising state (PLAY state). HB driving shaft Ⓜ is mounted onto head chassis through shift arm, thus it rises with head chassis. The rise of head chassis makes pinch roller press contact capstan through pinch press contact spring.

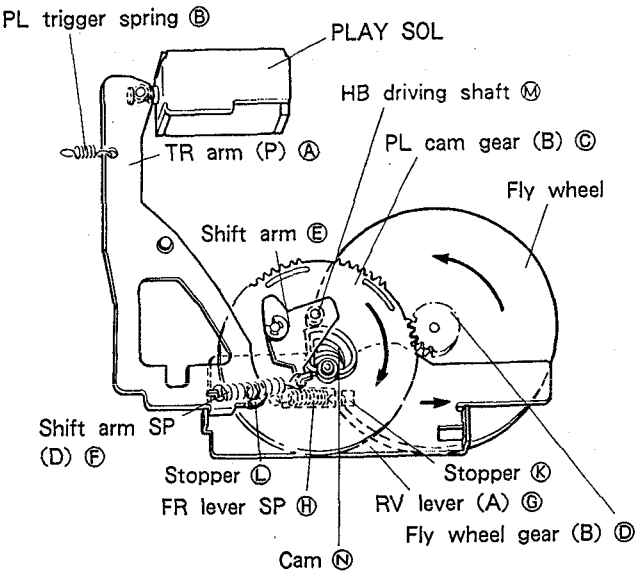


Fig. 8–4

• **Generation of Tape Winding Torque during PLAY (Refer to Fig. 8−5.)**
When head chassis rises, boss Ⓡ of arm Ⓤ which is pressed by PLAY arm SP to the right side of the through hole of the center of head chassis moves from the narrow part to the wide part of head chassis through hole. Then, arm Ⓤ rotates clockwise. At the same time PLAY gear Ⓦ, which rotates while engaging with clutch assembly, engages with gear of the TU reel stand. This generates TU reel winding torque.

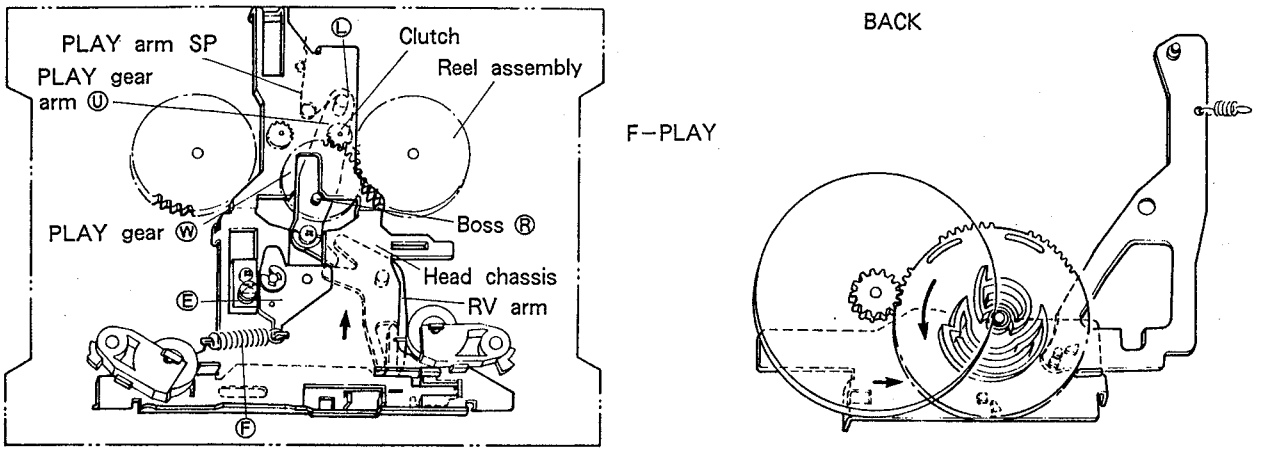


Fig. 8−5

1.3 FWD PLAY→STOP (Refer to Fig. 8−6.)

1) PLAY solenoid pulls, TR arm (P) Ⓐ.
2) The pin of arm Ⓐ comes off stopper Ⓛ.
3) Head chassis is pressed by head chassis SP and moves down, and gear Ⓒ rotates through HB driving shaft Ⓜ inside shift arm.
4) When head chassis moves down, boss Ⓡ of arm Ⓤ is pressed back from the wide part of the through hole in head chassis to the narrow part, and arm Ⓤ rotates counterclockwise.
5) PLAY gear Ⓦ leaves reel stand assembly, and real stand assembly rotation stops.
6) Head chassis lowers, and pinch press contact is released.
7) Two gears Ⓒ and Ⓓ, engage each other.
8) PLAY solenoid is released.
9) Gear Ⓒ continues rotating by gear Ⓓ rotation.
10) Gear Ⓒ comes off gear Ⓓ when driving shaft Ⓜ comes to the slope of the short piece side of cam Ⓝ.
11) Gear Ⓒ tries to continue rotating due to driving shaft Ⓜ pressing force and the slope action of the short piece side of cam Ⓝ. However, stopper Ⓚ hits the pin of arm Ⓐ and gear Ⓒ stops rotating. At the same time, driving shaft Ⓜ stops in the lowering state. (STOP state) (Fig. 8−1., Fig. 8−2.).

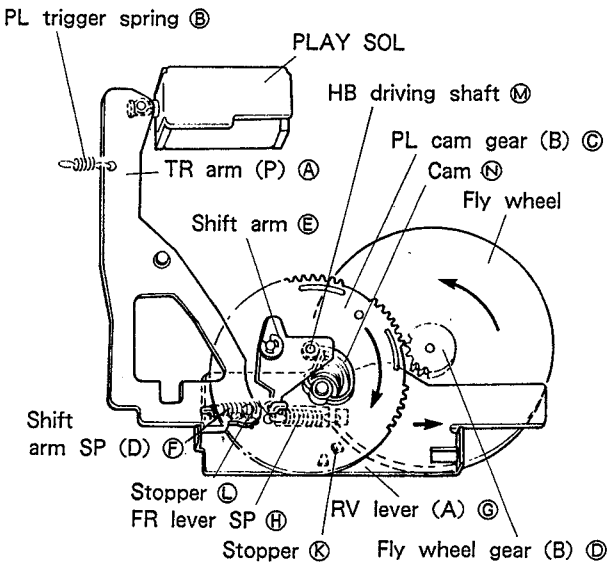


Fig. 8−6

1.4 STOP→REV PLAY

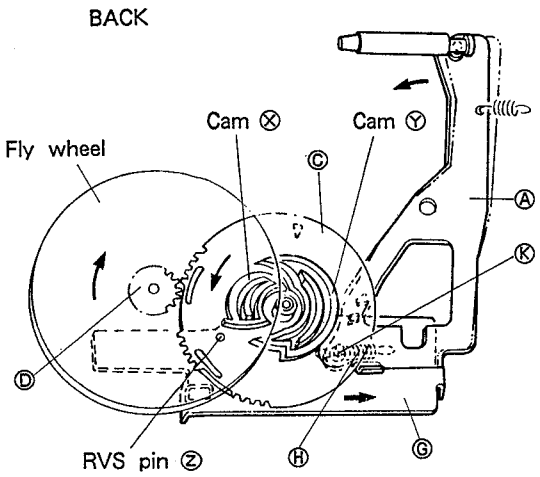


Fig. 8–7

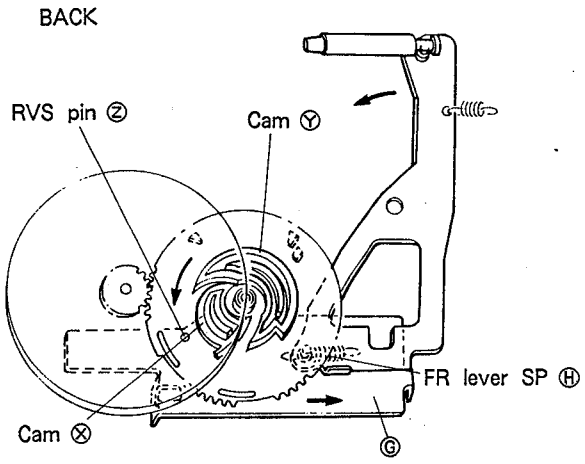


Fig. 8–8

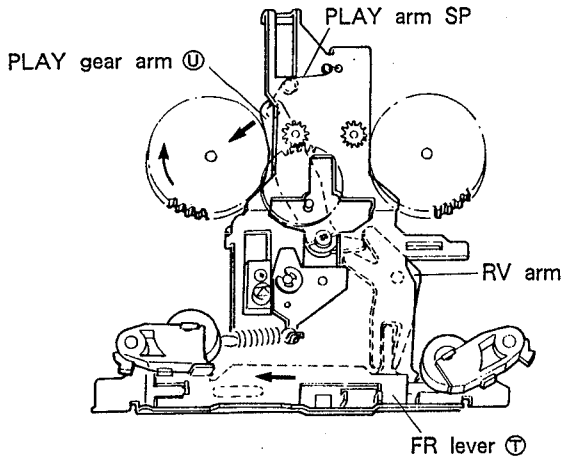


Fig. 8–9

R–PLAY

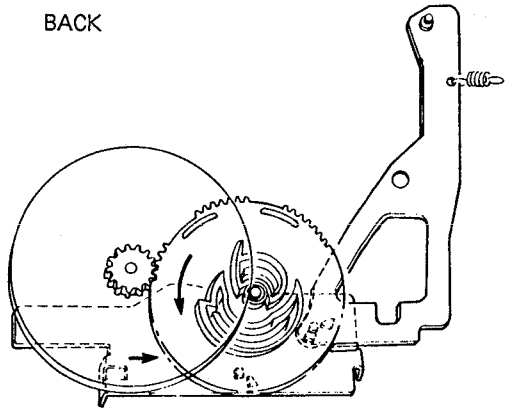


Fig. 8–10

(Refer to Fig. 8–3.)

1) PLAY solenoid pulls TR arm (P) Ⓐ.
2) The pin of arm Ⓐ comes off stopper Ⓚ.
3) RV lever (A) Ⓖ moves in the direction of the arrow in the Fig. 8–7 due to its linked movement with arm Ⓐ. RVS pin Ⓩ fixed onto RV lever (A) Ⓖ moves to the external wall of cam Ⓧ which is on the back side of cam gear Ⓒ (Fig. 8–7.).
4) Head chassis lowers, pressed down by head chassis SP. Gear Ⓒ rotates through HB driving shaft Ⓜ inside shift arm.
5) Two gears Ⓒ and Ⓓ, engage each other.

(Refer to Fig. 8–8.)

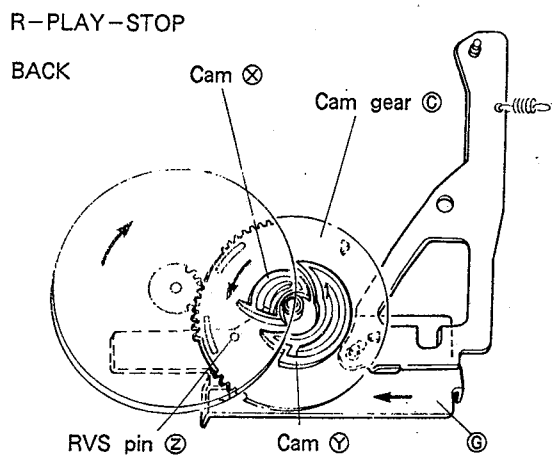
6) Gear Ⓒ continues rotating due to the rotation of gear Ⓓ.
7) RVS pin Ⓩ of RV lever (A) Ⓖ is take into the inside wall by the tip of cam Ⓨ forming at the back side of cam gear. RV lever (A) Ⓖ moves in the arrow direction while resisting against spring Ⓗ.
8) PLAY solenoid is released.

(Refer to Fig. 8−9.)

9) The rotation of gear Ⓒ continues, and FR lever Ⓣ linked with RV lever (A) Ⓖ moves in the arrow direction.
10) Head rotates in the opposite direction, turned by the fan shape gear linked to the center of FR lever Ⓣ.
11) RV arm rotates clockwise, pushed by the link between FR lever Ⓣ tongue piece and RV arm U−shaped piece.
12) PLAY gear arm Ⓤ, linked with the other end V groove of RV arm, rotates counterclockwise, and PLAY gear arm Ⓤ continues to be pushed counterclockwise due to the action of PLAY arm SP mounted at the another end.
13) The rest is the same as the explanation from 1.2−6) to "Generation of the Tape winding Torque during PLAY" in the section of STOP→FWD PLAY.

1.5 REV PLAY→STOP

1) Refer to 1) to 9) of "1.3 FWD PLAY→STOP". The descriptions are the same except that in 4) arm Ⓤ rotates clockwise.
2) With cam gear Ⓒ continuing to rotate, RVS pin Ⓩ moves while touching the inside wall of cam Ⓨ forming at the back side of cam gear Ⓒ. And RV lever (A) Ⓖ is pushed in the arrow direction by cam Ⓧ.
3) FR lever Ⓣ linked with RV lever (A) Ⓖ moves in the direction opposite to that indicated in Fig. 8−9.
4) Head returns during rotating.
5) RV arm rotates counterclockwise.
6) PLAY gear arm Ⓤ rotates clockwise.
7) Continue with (10), (11) in the section of FWD PLAY→STOP.



2. FF. REW System Operation

[STOP]

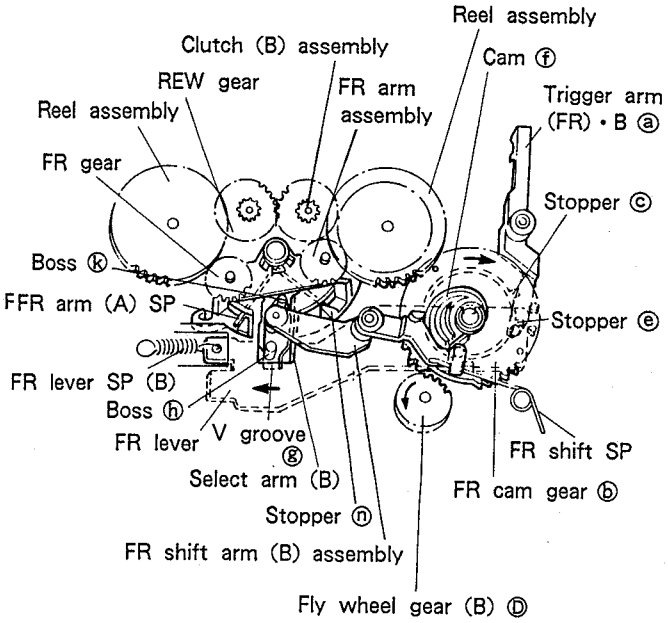


Fig. 8−11

2.1 STOP State

Fig. 8−11 indicates the FF/REW power−assist mechanism during STOP.
In the figure, cam ⓕ and stopper ⓒ, ⓔ are formed on the front and back of FR cam gear ⓑ.
Fly wheel is belt−driven by the capstan. Together with fly wheel gear (B) Ⓓ it rotates counterclockwise.
One end of FR shift arm supported with shaft on the mech−base receives force counterclockwise by FR shift SP and contacts the external circumference of cam ⓕ. And, the eccentricity of contact point between rotaly shaft of FR cam gear and FR shift arm produces rotational force clockwise to FR cam gear. At this time, since FR solenoid does not pull, trigger arm (FR) linked with FR lever receives action of FR lever SP through FR lever ; it bites into stopper ⓒ, prevents FR cam gear ⓑ from rotating.
Select arm (B) is supported with shaft on another end of FR shift arm, and boss ⓗ is on one end of it.
This boss ⓗ is guided along V groove ⓖ of FR lever therefore select arm shifts during rotating clockwise.
FR arm assembly is centered by FR arm (A) SP action, while FR gear supported with shaft on FR cam is located away from reel assembly, thus preventing reel assembly from rotating.

2.2 STOP→OFF

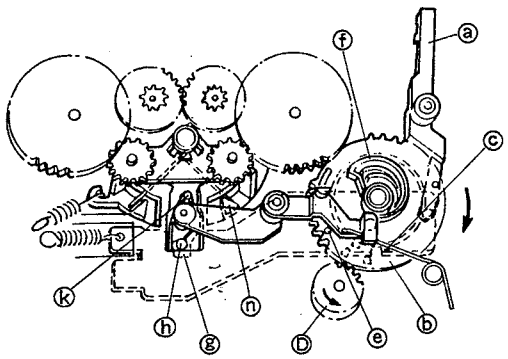


Fig. 8–12

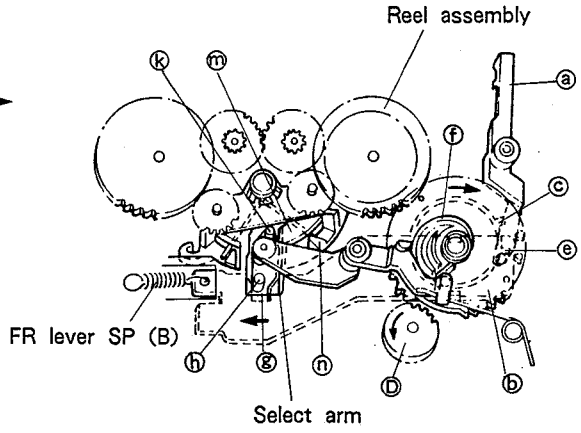


Fig. 8–13

(Refer to Fig. 8–12.)

1) F/R solenoid pulls.
2) The pin of trigger arm (FR) · B ⓐ comes off stopper ⓒ.
3) FR lever is linked with arm ⓐ and moves to the right in the figure (the arrow direction).
4) Select arm (B) rotates counterclockwise, pushed by boss ⓗ linked with V groove ⓖ of FR lever.
5) FR cam gear ⓑ rotates due to the action of the FR shift SP, which is on one end of FR shift arm (B) assembly, against cam ⓕ.
6) Cam gear ⓑ and fly wheel gear (B) ⓓ engage each other.
7) F/R solenoid is released.

(Refer to Fig. 8–13.)

8) FR lever returns to the left side in the figure, pushed by FR lever SP (B) in the movement linked with arm ⓐ.
9) Select arm (B), which remains linked in V groove ⓖ, returns to rotating clockwise.
10) Gear ⓑ continues rotating according to gear ⓓ rotation.
11) FR shift arm rotates clockwise by cam ⓕ.
12) Select arm (B) supported with shaft on the other end of FR shift arm continues shifting during rotating clockwise. Boss ⓗ comes off FR lever V groove ⓖ, and next boss ⓚ is guided into groove on the right side of V shaped cam ⓜ of the mech–base. Therefore, select arm (B) continues rising.
13) Boss ⓚ of the select arm (B) presses up FR arm (A) SP. FR arm assembly rotates counterclockwise, resisting against FR arm (A) SP.
14) FR gear supported with shaft on FR arm engages with both clutch (B) assembly and reel assembly which is rotating, and a winding torque generates in the reel assembly.
15) Gear ⓑ disengages gear ⓓ when FR shift arm passes the highest point of cam ⓕ.
16) Gear ⓑ tries to continue rotating by FR shift SP pressing force and cam ⓕ slope action, but stopper ⓔ hits the pin of arm ⓐ, the rotation of gear ⓑ stops. When this occurs, shift arm stops in a rising state (FF state).
    At this time, the tip of FR arm (A) SP is away from stopper ⓝ of FR arm.

2.3 STOP→REW

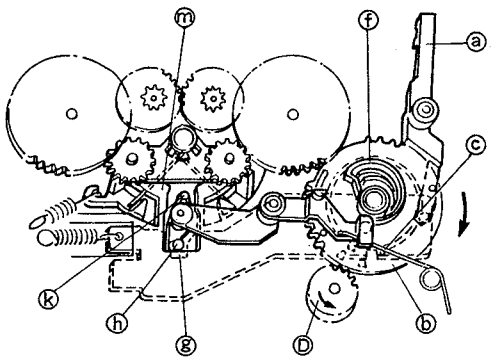


Fig. 8–14

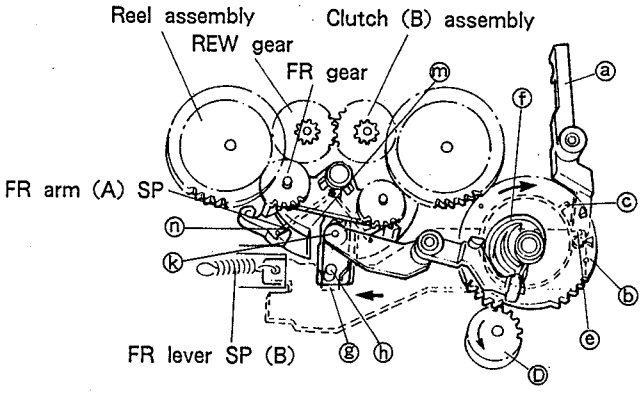


Fig. 8–15

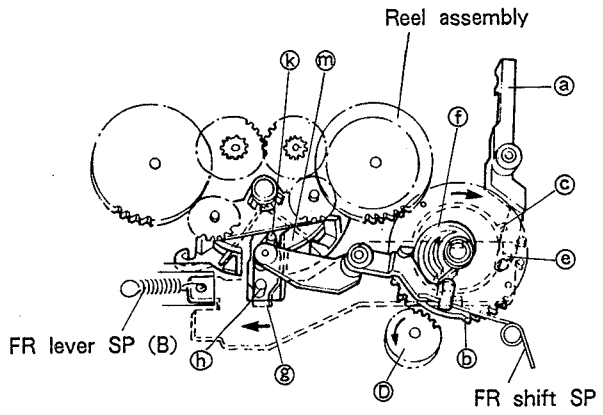
(Refer to Fig. 8–14.)

1) F/R solenoid pulls.
2) The pin of trigger arm (FR) • B ⓐ comes off stopper ⓒ.
3) FR lever is linked with arm ⓐ and moves to the right in the figure (the arrow direction).
4) Select arm (B) rotates counterclockwise, pushed by boss ⓗ linked with V groove ⓖ of FR lever.
5) FR cam gear ⓑ rotates due to the action of FR shift SP, which is on one end of FR shift arm (B) assembly, against cam ⓕ.
6) Cam gear ⓑ and fly wheel gear (B) Ⓓ engage each other.
7) Gear ⓑ continues rotating according to gear Ⓓ rotation.
8) FR shift arm rotates clockwise by cam ⓕ.
9) Select arm (B) supported with shaft on the other end of FR shift arm continues shifting during rotating counterclockwise. Boss ⓗ comes off FR lever V groove ⓖ, and next, boss ⓚ is guided into groove on the left side of V shaped cam ⓜ of the mech–base. Therefore, select arm (B) continues rising.

(Refer to Fig. 8–15.)

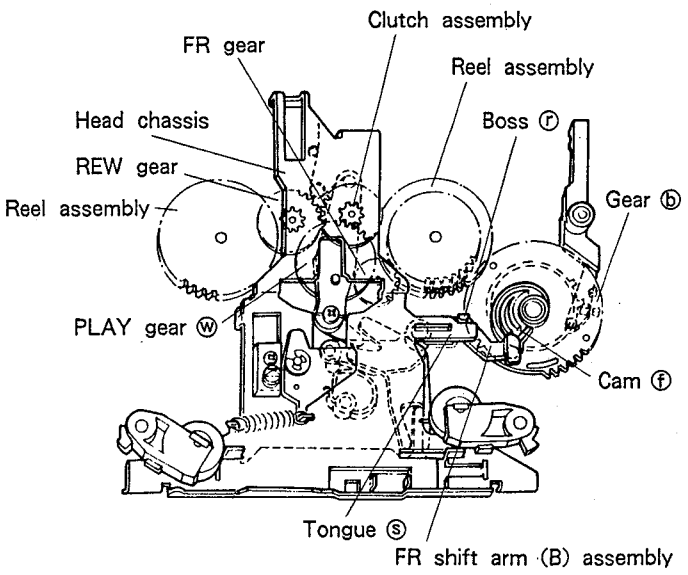
10) FR solenoid is released.
11) FR lever returns to the left side in the figure, pushed by FR lever SP (B) in the movement linked with trigger arm (FR) • B ⓐ.
12) Gear ⓑ continues rotating and boss ⓚ of select arm (B) presses up FR arm (A) SP. Then FR arm assembly rotates clockwise.
13) REW gear engages with clutch assembly and continues rotating. FR gear supported with shaft on FR arm engages with both this REW gear and reel assembly. Therefore winding torque generates in reel assembly.
14) Gear ⓑ disengages gear Ⓓ when FR shift arm passes the highest point of cam ⓕ.
15) Gear ⓑ tries to continue rotating by FR shift SP pressing force and cam ⓕ slope action. But, stopper ⓔ hits the pin of arm ⓐ, and the rotation of gear ⓑ stops. When this occurs, shift arm stops in a rising state (REW state).
    At this time, the tip of FR arm (A) SP is away from stopper ⓝ.

2.4 FF/REW→STOP



1) FR solenoid pulls.
2) The pin of trigger arm (FR)・B ⓐ comes off stopper ⓔ.
3) FR lever is linked with arm ⓐ, and moves to the right in the figure.
4) FR cam gear ⓑ rotates due to the action of FR shift SP, which is on one end of FR shift arm (B) assembly, against cam ⓕ.
5) Cam gear ⓑ and fly wheel gear (B) ⓓ, engage each other.
6) Gear ⓑ continues rotating due to gear ⓓ rotation.
7) FR shift arm rotates counterclockwise by cam ⓕ.
8) Boss ⓚ of select arm supported with shaft on the other end of FR shift arm comes off V shaped cam ⓜ of the mech−base. Boss ⓗ at the other end of select arm is guided into V groove ⓖ of FR lever.
9) FR solenoid is released.
10) FR lever is linked with arm ⓐ by FR lever SP (B) and moves to the left in the figure.
11) Gear ⓑ disengages from gear ⓓ when FR shift arm comes down from cam ⓕ to it's lowest point.
12) Gear ⓑ tries to continue rotating by the FR shift SP pressing force and cam ⓕ slope action. But stopper ⓒ hits the pin of arm ⓐ, and the rotation of gear ⓑ stops. (STOP state)

2.5 STOP→MS

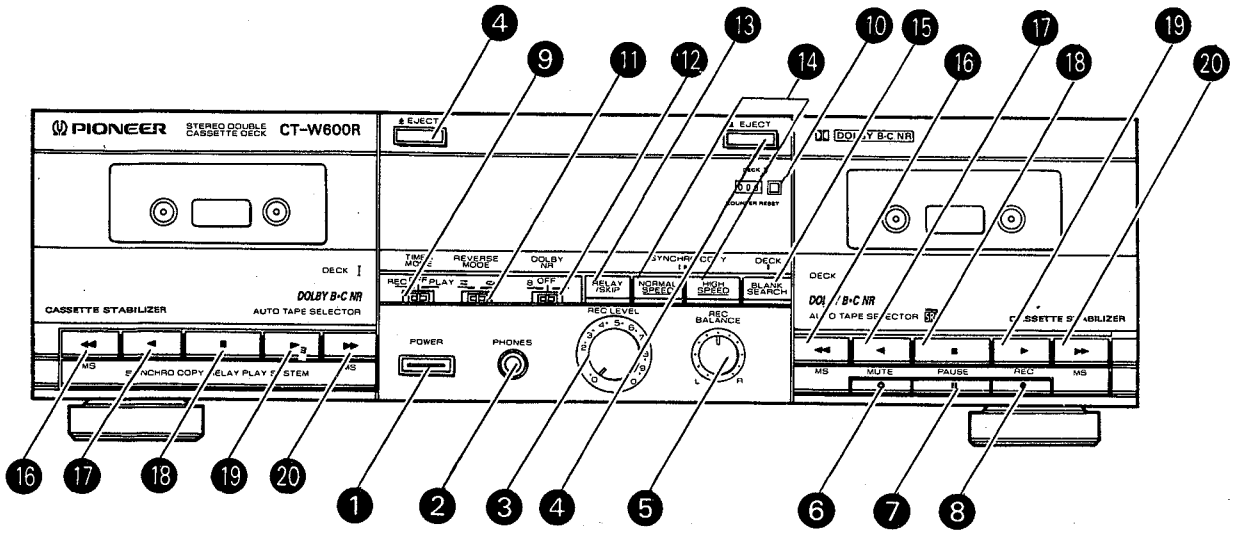


1) In the motion, FF or REW motion is executed in PLAY state.
2) Tongue piece ⓢ of head chassis is pressed down by boss ⓡ of FR shift arm, as gear ⓑ rotates against head chasses in PLAY position with the FF or REW action and FR shift arm (B) assembly rotates clockwise by cam ⓕ.
3) Pinch roller leaves capstan.
4) As head chassis lowers, play gear ⓦ leaves reel assembly.
5) FR gear engage with clutch assembly rotating with the belt, or into between REW gear and reel assembly. The number of revolution and torque at FF or REW action is generated at reel assembly. (Cam gear stops at a position of PLAY and FF, or REW state.)

2.6 MS→STOP

Execute PLAY→STOP and FF, or REW→STOP action.

9. PANEL FACILITIES



❶ POWER switch

❷ PHONES jack

❸ REC LEVEL control

❹ EJECT button

Press to open the cassette door after you have pressed the stop (■) button and the tape has stopped.

NOTE:

If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the EJECT button.

❺ REC BALANCE control

Only deck II is equipped with a recording function. Normally leave the REC BALANCE control in the center click position. Adjust it if you want to change the relative recording levels of the right and left channels.

❻ Recording mute (MUTE) button (O)

Press this button during recording to create a blank portion of approx. 4 seconds on the tape. The unit will then enter the recording pause mode.

❼ PAUSE button (▮▮)

To stop tape transport momentarily during recording or playback. Press it again to resume operation (this can also be done by pressing the ◄ or ► button).
This button does not work during fast-forward and rewind.

❽ Recording (REC) button (●)

To start recording. The unit will not enter the recording mode if a cassette with the erasure prevention tabs removed is loaded.

⑨ TIMER MODE switch

OFF:
Normally, be sure to leave the switch in this position.

REC:
For timer recording

PLAY:
For timer playback

- Recording or playback may suddenly start when turning power on with this switch in the REC or PLAY position.

⑩ DECK II tape COUNTER RESET button

Resets the tape counter reading to "000"
(The TAPE COUNTER works for deck II only.)

⑪ REVERSE MODE switch

⑫ DOLBY NR switch

Set this switch to B or C for recording with the built-in Dolby Noise Reduction system and for playback of tapes which have been recorded using the Dolby Noise Reduction system. For other tapes, set the DOLBY NR switch to OFF.

NOTE:
When playing back Dolby NR encoded tapes, always set this switch to the same position (B or C) used for recording.

⑬ RELAY/SKIP button

Press this button (turning the corresponding indicator on) to perform relay playback from deck I to deck II or from deck II to deck I.
It also activates the blank skip function, which fast forwards the tape to the beginning of the next selection, resuming playback from there, when mute playback continues for more than 15 seconds.

⑭ SYNCHRO COPY buttons

NORMAL SPEED:
Starts tape copy at normal speed from deck I to deck II.

HIGH SPEED:
Starts tape copy at double speed (half time) from deck I to deck II.

⑮ BLANK SEARCH button

To find unrecorded portions on the tape
The blank search function works for deck II only.

⑯ Rewind button (◀◀)

To fast-forward the tape in the direction of the arrows. When pressed during playback, the unit will skip one selection each time the button is pressed, then start playback from the beginning of the next selection.

⑰ Play button (◀)

To playback the back side of the tape; that is the side opposite to the side whose label is visible (reverse playback).

⑱ Stop button (■)

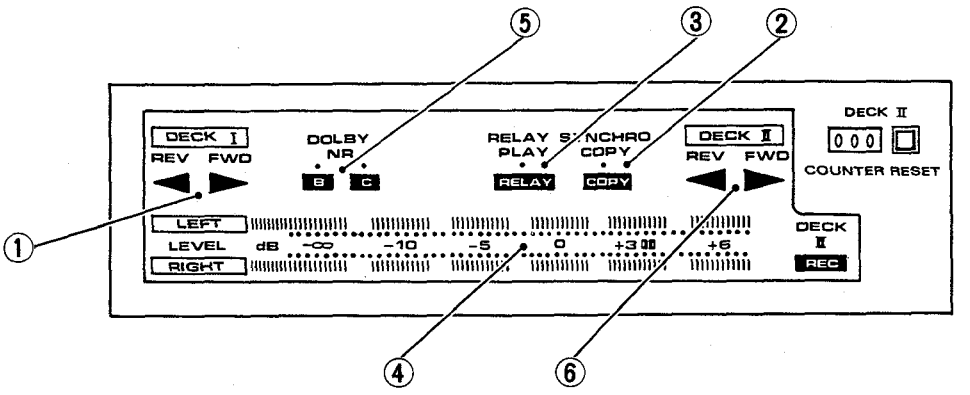
To stop all operations, including tape copy.

⑲ Play button (▶)

To playback the front side of the tape; that is the side whose label is visible (forward playback).

⑳ Fast Forward button (▶▶)

To fast-forward the tape in the direction of the arrows. When pressed during playback, the unit will skip one selection each time the button is pressed, then start playback from the beginning of the next selection.



OPERATING DISPLAY

① Deck I tape transport mode indicators

② SYNCHRO COPY indicator

Lights up during the tape copy operation.

- Normal speed copy

SYNCHRO COPY
COPY Lights

- Double speed copy

SYNCHRO COPY
COPY Flashes

③ RELAY PLAY indicator

Lights up when the RELAY/SKIP button is pressed to perform relay playback.

④ Level meter

The ▯▯ beside the +3 dB mark indicates the Dolby NR system standard level.

⑤ DOLBY NR B/C indicator

- When Dolby NR is off

DOLBY NR

- Version B on

DOLBY NR
B

- Version C on

DOLBY NR
C

⑥ Deck II tape transport mode indicators

CT-W600R

10. SPECIFICATIONS

Systems ..... 4 track, 2-channel stereo
Heads .....
"Hard Permalloy"/Deck II recording/playback head × 1
"Hard Permalloy"/Deck I playback head × 1
"Ferrite" erasing head × 1
Motor ..... DC servo motor × 2
Wow and Flutter ..... No more than 0.055% (WRMS)
No more than ±0.16% (DIN)
Fast winding Time ..... Approximately 100 seconds
(C-60 tape)

Frequency Response
−20 dB recording:
Normal tape ..... 25 to 16,000 Hz
Chrome tape ..... 25 to 17,000 Hz
Metal tape : ..... 25 to 18,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 57 dB

Noise Reduction Effect
Dolby NR B type ON ... More than 10 dB (at 5 kHz)
Dolby NR C type ON ... More than 19 dB (at 5 kHz)

Harmonic Distortion ..... No more than 0.7% (0 dB)
Input (Sensitivity)
LINE (INPUT) ..... 63 mV (Input impedance 68 kΩ)
Output (Reference level)
LINE (OUTPUT) .....
316 mV (Output impedance 5.4 kΩ)
Headphone .....
0.25mW (Load impedance 8Ω)

Subfunctions

- DOLBY NR B/C types
- Music search over ± 15 selections (DECK I & DECK II)
- Double-speed and normal-speed copy (DECK I→DECK II)
- Synchronized copy start.
- Relay playback/blank skip
- 3-digit mechanical tape counter (DECK II)
- 5 segments/channel LED level meter
- Automatic space recording mute
- Blank search (DECK II only)
- Automatic tape selector
- Automatic reverse (DECK I: Playback; DECK II: Recording/Playback)
- Headphone jack
- System remote control compatible (not provided in the European model.)
- TIMER Recording/Playback (Only TIMER Playback: automatic relay on)

Miscellaneous

Power Requirements
U.S., Canadian models ..... AC 120V, 60 Hz
European model ..... AC 220V, 50/60 Hz
U.K., Australian models ..... AC 240V, 50/60 Hz
U.S. military and other destination models .....
AC 110V/120V−127V/220V/240V, 50/60 Hz
(switchable)

Power Consumption
U.S., Canadian models 19W
European, U.K., Australian models 19W
U.S. military, other destination models 19W

Dimensions
U.S., Canadian models .....
420(W) × 116.5(H) × 316(D) mm
16-9/16(W) × 4-9/16(H) × 12-7/16(D) in
European, U.K. models .....
420(W) × 132(H) × 316(D) mm
16-9/16(W) × 5-3/16(H) × 12-7/16(D) in

Weight (without package) ..... 5.0 kg (11 lb)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
Control cord (not provided in the European model) ... 1

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.